

SECRETARY'S COMMISSION FOR THE ACHIEVEMENT OF NECESSARY SKILLS
(SCANS) COMPETENCIES WITHIN 4-H CURRICULA

By

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To my loving family, who no matter where life took me, was always there to support me

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Abstract of Thesis Presented to the Graduate School
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The United States faces a challenge with the decrease of students' interest in various career fields, such as science, engineering, and technology. As the need increased for youth to possess workforce competencies, a need also emerged to examine the activities used to promote these competencies along with life skills. 4-H curricula have not historically been successful in including career competencies. Recent attention has been brought to the areas of science, engineering, and technology within 4-H programming, thus allowing for 4-H to assist in addressing the challenge of preparing students to enter into these career fields. As one avenue for developing career competencies, 4-H curricula should be analyzed in order to determine if career competencies are now being included. The purpose of this study was to analyze 4-H curricula utilized by Florida 4-H to determine if 4-H curricula utilized SCANS competencies.

In order to achieve the study objectives, a basic qualitative study was undertaken utilizing a content analysis methodology. The SCANS competencies served as the coding categories during the content analysis. The data sources for this study were the 4-H curricula utilized by Florida 4-H Youth Development. Each curriculum's objectives/outcomes were coded accordingly and thick descriptions for the SCANS competencies were reported. Steps were taken to ensure trustworthiness and its four components, credibility, dependability, transferability, and

confirmability. The main steps taken were the undertaking of an inquiry audit, peer debriefing, thick descriptions, and an audit trail.

It was found that the Career Development curricula were at a higher quality than the popular project curricula. The standard for quality within the study was the inclusion of SCANS competencies, which the Career Development curricula included all 20 competencies and at a higher frequency. The popular project curricula lacked many of the SCANS competencies that would have been assumed to be included within 4-H project curricula, such as “interpersonal.”

Curriculum developers should increase the inclusion of SCANS competencies in 4-H curricula. Curriculum developers should also ensure the objectives and outcomes reflect those competencies and skills developed within the curricula’s activities. Research should be conducted to examine the inclusion of SCANS competencies within the activities and lessons outlined within 4-H curricula.

CHAPTER 1 INTRODUCTION

Over 100 years ago in America, the beginnings of 4-H started within rural youth programs (National 4-H Council, 2008). 4-H has now evolved into the largest government funded youth organization through the combined assistance of the United States Department of Agriculture (USDA), Cooperative Extension educators, land-grant universities, 4-H foundations, councils, and associations, volunteers, and special congressional appropriations (National 4-H Council, 2008: May, 2007).

The Morrill Act of 1862 created the land-grant university system in the United States, establishing a university in every state (Morrill Act, 1862). These universities concentrated on education in the areas of agriculture and engineering. In order to create useful research and to work with the land-grant universities, the Hatch Act of 1887 created the agricultural experiment stations. Stemming from the stations created, the Cooperative Extension Service was founded with the passing of the Smith-Lever Act to create a partnership between the U.S. Department of Agriculture, the land-grant universities, and the consumers (Smith-Lever Act, 1914). The goal of the Cooperative Extension Service is to provide “useful, practical, and research-based information to agricultural producers, small business owners, youth, consumers, and others in rural areas and communities of all sizes” (Cooperative State Research, Education, and Extension Service, 2008a, ¶ 1). Cooperative Extension Service is located in every state and U.S. territory, and each has a network of local and regional offices.

Youth programs developed within the Cooperative Extension Service were an avenue for introducing agricultural technology to rural Americans (National 4-H Council, 2007). Since 4-H’s creation at the turn of the century, the organization has grown and adapted to meet the needs of the constantly changing youth of the United States. 4-H presently has over 6.5 million

youth members in all 50 states; Washington, DC; American Samoa; Guam; Northern Mariana Islands; Puerto Rico; and the U.S. Virgin Islands, as well as youth in U.S. Army and Air Force installations worldwide (National 4-H Council, 2007)

The mission of 4-H is to empower “youth to reach their full potential, working and learning in partnership with caring adults” (National 4-H Council, 2007, ¶1). 4-H teaches its members leadership, citizenship, and life skills through participation in over 1,000 project areas, including nutrition, aerospace, small engines, robotics, communications, and numerous others (National 4-H Council, 2007). Youth have opportunities to become involved in the “Learning by Doing” 4-H philosophy through traditional 4-H clubs, 4-H camps, and school-based or after-school 4-H programs (National 4-H Council, 2006).

Frameworks for 4-H Youth Development

In alignment with the mission of 4-H to empower “youth to reach their full potential, working and learning in partnership with caring adults,” 4-H has created frameworks in which to develop and carry out programs (National 4-H Council, 2007, ¶1). 4-H teaches its members leadership, citizenship, and life skills through the use of over 1,000 project areas (National 4-H Council, 2007). This learning takes place within opportunities for youth to become involved in the “Learning by Doing” 4-H philosophy which is conveyed through the 4-H Experiential Learning model (Diem, 2004).

Targeting Life Skills Model

The Targeting Life Skills (TSL) Model was created by Iowa State University Extension to guide the efforts of 4-H programming as an all inclusive model of the life skills youth should acquire (Hendricks, 1998). This model, shown in Figure 1-2, has been widely used in Extension throughout the country to show the life skills youth should learn through 4-H. The purpose of the TSL model was to “provide a way to simplify coordination of life skill development with ages

and stages tasks so programs [would] be developmentally appropriate and more effective in achieving identified outcomes” (Hendricks, 1998, p. 4). The skills are divided out according to the four H’s of 4-H, hands, heart, head, and health, and each section of the model contains between seven and ten individual skills. The TSL model reflects the life skills 4-H promotes in its programming.

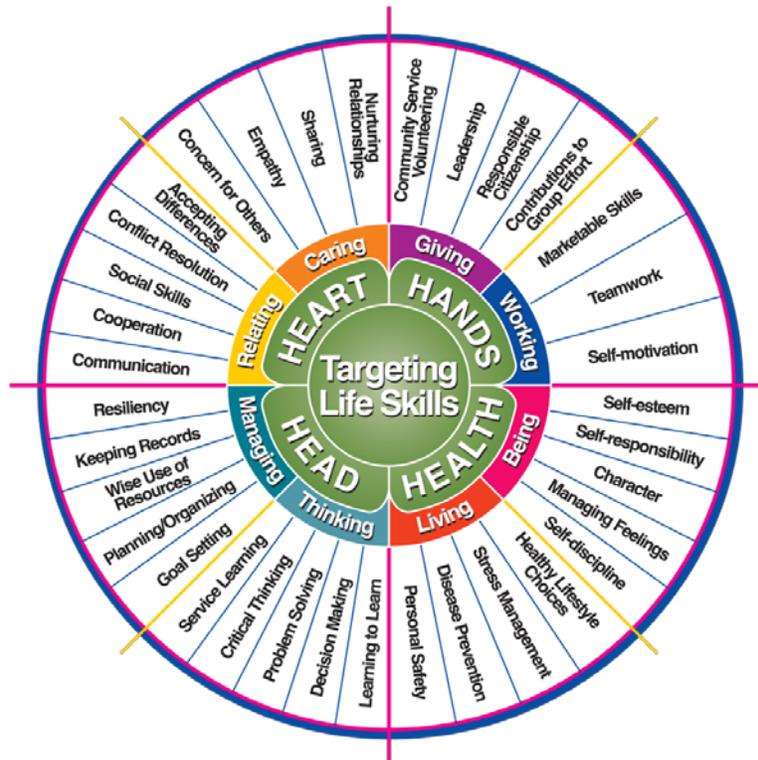


Figure 1-2. Targeting Life Skills Model (Hendricks, 1996)

Experiences teaching or reinforcing the skills within the TSL model must be offered because skills are mastered through opportunities to try, make mistakes, and try again (Norman & Jordan, n.d.). The process of trying over and over reflects the 4-H Experiential Learning model 4-H utilizes within its programming (Diem, 2004). The 4-H life skills included in the TSL model align closely with the skills and competencies outlined in the Secretary’s Commission on Achieving Necessary Skills (SCANS) report (1991), making these skills and competencies very relevant to the creation and evaluation of 4-H programming materials, including curricula. The

TSL model is utilized by many state, regional, and local 4-H programs as a tool to guide program and material development and implementation (Hendricks, 1998).

4-H Experiential Learning Process

4-H has utilized the 4-H Experiential Learning Process to impart knowledge and skills to youth through the 4-H “Learn by Doing” motto. The model utilized by 4-H today was based upon the work of Dewey and Kolb. Dewey’s theory stated “genuine education comes through experience” (Dewey, 1938, p. 24) and from this basic theory Kolb later developed the Experiential Learning Theory and subsequent model (Kolb, 1984). Dewey built his learning theories upon the belief of experience generating genuine knowledge along with the belief that experiences build upon each other (Dewey, 1938). Learning according to the Experiential Learning Theory is “the process whereby knowledge is created through the transformation of experiences” and “knowledge results from the combination of grasping and transforming experience” (Kolb, 1984, p. 41). The Experiential Learning Model has since been adopted for use within 4-H to better depict the “learn by doing” process 4-H employs (Diem, 2004).

In the 4-H Experiential Learning Process, the four stages of Kolb’s Experiential Learning Model have been adapted into five steps: experience, share, process, generalize, and apply (Diem, 2004). The following are descriptions of the five steps (Enfield, 2001).

- Experience- youth actively participate in an activity or experience before being told or shown how
- Share- youth describe the experience and their reactions and observations
- Process- youth process the experience by discussing specific patterns and dynamics; they analyze and reflect
- Generalize– youth generalize to connect the experience to real-world examples
- Apply– youth apply what was learned to a similar or different situation; practice.

The Experiential Learning Process, seen in Figure 2-5, has been used in 4-H youth development because of its ability to present youth with “a question, problem, situation, or activity which they must make sense of for themselves” instead of being told “the answers” (Diem, 2004, p. 447).

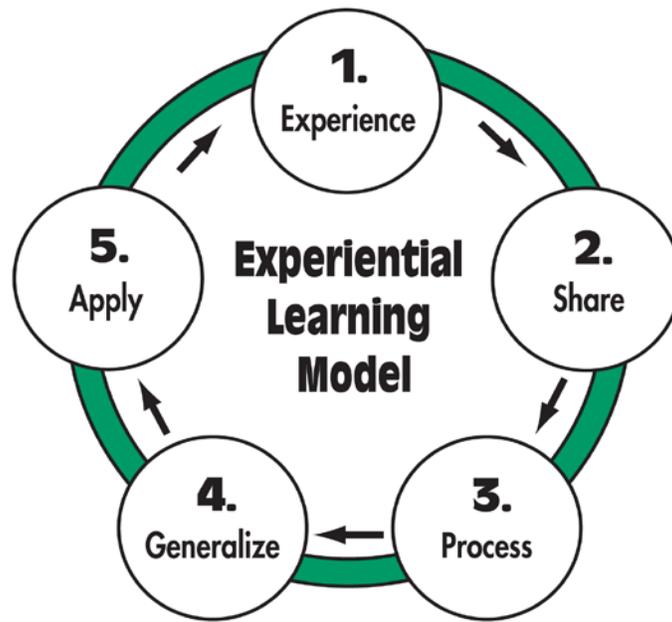


Figure 1-3. 4-H Experiential Learning Process (Pfeiffer & Jones, 1983)

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By incorporating the 4-H Experiential Learning Process, youth go beyond the simple “learning by doing” and delve into experiential learning with the addition of the reflective portions of the process. Enfield (2001) stated 4-H has functioned under the belief youth gain the most from educational experiences when guided through meaningful activities followed by guided reflective activities related to the activities. The reflection component of the model encourages youth to think and reflect upon their present experiences and make connections with previous experiences and knowledge in order to guide their action in the future (Enfield, 2001). The 4-H Experiential Learning Process is used in curriculum development in conjunction with the Targeting Life Skills Model (Hendricks, 1996).

SCANS Relevance

Since the SCANS report's publication in 1991, workplace atmosphere and job expectations have changed drastically, including new skills, new tasks, and new ways to work (North & Worth, 2004). North and Worth found trends in relation to the SCANS competencies and skills from 1992 to 2002 that showed SCANS are still important in the workplace years later. 4-H can help develop those competencies and skills through youth development efforts aligning with their own Targeting Life Skills Model (Hendricks, 1998). Identifying the SCANS competencies and skills incorporated into 4-H curricula can assist in analyzing the trends in 4-H curriculum development.

Curriculum development and analysis has become a more pressing issue for educators recently (Finch & Crunkilton, 1999; Oliva, 2005; Ornstein & Hunkins, 2004). Cooperative Extension and 4-H have not been an exception to this trend. With budgetary cuts in many states, various aspects of Cooperative Extension have come under scrutiny to ensure effectiveness. As educators, Extension faculty have to realize the importance of analyzing 4-H curricula to find the value of the curriculum material they use (Finch & Crunkilton, 1999). Analyzing curriculum can take on many appearances, from the analysis of the outcomes of curriculum implementation, the process within curriculum implementation, or the curricula themselves (Finch & Crunkilton, 1999). Within this study, the curriculum analysis concentrated upon the 4-H curricula.

This need for analysis and evaluation of 4-H curricula has also been indicated in the "National Research Agenda: Agricultural Education and Communication" (Osborne et al., 2007) in the Extension research priority area which called for researchers and professionals to "identify and use evaluation systems to assess program impact" (p. 15). This study assisted in assessing the curricula in hopes of enhancing "the quality of these agricultural and extension education programs" (Osborne et al., 2007, p. 15).

Statement of the Problem

Impact studies have been performed on 4-H members in the last 25 years, but the results since the mid-1990s have been more positive than previous studies. El Sawi (1997) described earlier studies as indicating inconclusive evidence of 4-H's impact on the development of life skills within 4-H members (Ladewig & Thomas, 1987; Miller & Bowen, 1991; Schlutt, 1987; Waguespack, 1988). With 4-H promoting itself as a community of youth learning life and career development skills, these studies did not reflect positively on achieving the mission of 4-H. Recent studies have been able to show more conclusive evidence of 4-H's impact on its members. In 2001, National 4-H Headquarters started an impact assessment project which served as a catalyst for states to perform their own impact assessments. The initial project report outlined a few of the positive impact studies started or already undertaken at that time. Those states which took the initiative and performed their own impact studies included Colorado (Goodwin, Carroll, & Oliver, 2007), Idaho (Goodwin et al., 2005), Maine (Fitzpatrick, Gagne, Jones, Loble, & Phelps, 2005), Montana (Astroth & Haynes, 2002), New York (Rodriguez, Hirschle, Mead, & Goggin, 1999), and Oklahoma (Maass, Wilken, Jordan, Culen, & Place, 2006). These studies showed a positive correlation between 4-H participation and life skills development, along with other positive outcomes from participation.

Studies on 4-H curricula have also been performed in the past with either inconclusive or negative findings (El Sawi, 1994; Smith, 1986). Using the SCANS (1991) competency and skill areas as a standard of quality El Sawi (1997) analyzed state 4-H curricula to determine if targeted skills and competencies were included and found that 4-H curricula lacked the life skills promoted by 4-H as key elements of the program.

4-H curricula have undergone changes and revisions since El Sawi's study in 1997. Nationally, a jury review process for all National 4-H curricula has been created (National 4-H

Curriculum, 2008). Most state 4-H curricula also undergo a review process before being published for public use.

National 4-H has also begun to promote the 4-H Science, Engineering, and Technology (SET) Mission Mandate (National 4-H Headquarters, 2008). The SET Mandate works to promote youth development and career development in the areas of science, engineering, and technology. With the SET Mandate focus, 4-H's efforts can lead to "stronger and more effective youth programs, staff and volunteer development, evaluation, and financial and human resource support" (National 4-H Headquarters, 2008, ¶ 2). With the growing need for professionals in these and other areas, 4-H curricula can promote the competencies needed to succeed in the workplace.

Due to the changes in curricula and the SET Mandate focus inclusion of life and career skills and competencies may have also changed. Mulroy and Kraimer-Rickaby (2006) examined recommendations within 4-H involvement studies and found an interest in continued research in the area of "personal life and career application of specific life skills learned in 4-H" (p. v). Mulroy and Kraimer-Rickaby echoed the need for a new assessment to determine to what extent 4-H curricula now include life and career skills promoted as elements of the program. The need for improved education in the area of career development was also indicated in the National Research Agenda (Osborne et al., 2007). Osborne et al. determined a need for programs to assist in preparing youth for "career success in a competitive world marketplace," including identifying workforce needs and establishing curriculum standards (p. 19).

Purpose and Objectives

The purpose of this study was to analyze national and state 4-H curricula utilized by Florida 4-H to determine the extent to which 4-H curricula included SCANS competencies. The objectives for this study were to:

1. describe the inclusion of SCANS competencies within 4-H curricula,
2. describe the inclusion of SCANS competencies within each 4-H project area curricula, and
3. compare the quality of the 4-H career development project curricula and the five top project curricula, as determined by the presence of SCANS competencies.

Definition of Terms

- 4-H - This study utilized the definition given by the National 4-H Council (2007) that

“4-H is a community of more than 6.5 million young people across America learning leadership, citizenship and life skills. The 4-H community also includes 3,500 staff, 538,000 volunteers and 60 million alumni. 4-Hers participate in fun, hands-on learning activities supported by the latest research of land-grant universities that are focused on three areas: healthy living, citizenship, and science, engineering and technology” (Frequently Asked Questions, ¶ 2-3).

4-H is “the only informal educational program with a direct connection to United States land-grant universities and colleges” (National 4-H Curriculum, 2008, p. 2).

- 4-H project areas - For this study, 4-H project areas referred to the over 100 project areas youth can participate in as a 4-H member (Enfield, 2001). A few of the 4-H project areas include aerospace science, computer, food and nutrition, citizenship, leadership, photography, and animal science.
- Competencies- Within this study, competencies are defined by the 20 competencies outlined by the SCANS report, “What Work Requires of Schools: A SCANS Report for America 2000” (SCANS, 1991).
- Cooperative Extension Service - According to the U.S. Department of Agriculture, the Cooperative Extension Service is an extension of the land-grant university systems (USDA, 2008). The land-grant university offers “non-formal, non-credit programs” to solve “public needs with college or university resources” (USDA, 2008, ¶ 1). These programs are mainly delivered through local and regional Extension offices (USDA, 2008).
- Life skills – Skills outlined by various models, including the Targeting Life Skills Model (Hendricks, 1996), as being important for youth to gain. These life skills vary between the model and study being analyzed.
- National 4-H Curricula - The national curricula analyzed for this study

“focus on 4-H’s three primary mission mandates: science, engineering and technology; healthy living; and citizenship. Youth activity guides are filled with fun, engaging experiences that cultivate abilities youth need for everyday living as

they progressively gain knowledge about subjects that interest them” (National 4-H Curriculum, 2008, p. 2).

For the purpose of this study, National 4-H curricula designated curricula “reviewed and recommended by the National 4-H Curriculum Jury Review process” (National 4-H Curriculum, 2008, p. 2).

- Secretary’s Committee on Achieving Necessary Skills (SCANS) - SCANS was the commission appointed by the Secretary of Labor to “determine the skills our young people need to succeed in the world of work” and later published in the America 2000 report (SCANS Web site, 2006, ¶ 1). In this study, SCANS referred to the specific competencies outlined in “What Work Requires of Schools: A SCANS Report for America 2000” (SCANS, 1991).
- State 4-H Curricula - The state curricula analyzed for this study are materials created on the state level for 4-H project/subject areas. For the purpose of this study, the state 4-H curriculum is limited to the curricula utilized by Florida 4-H.

Limitations

This study only analyzed the curricula available to Cooperative Extension Service faculty and volunteers, may not be representative of what is actually being taught within the entire 4-H program. The curricula analyzed are limited to the most current editions of curricula available for use.

Assumptions

In this study, SCANS competencies are assumed to be life skills youth should possess and 4-H should include these competencies within its programming. Also, since all Florida 4-H curricula undergo a similar review process, it is assumed the remaining Florida curricula are similar to those analyzed within this study. In the study, it was assumed the skills within the learning objectives/outcomes reflect the skills within the educational activities.

It is also assumed Florida 4-H Youth Development Extension Agents utilize curricula within their own counties.

Summary

This chapter displayed the need for and provided the background for analyzing national and state 4-H curricula. In finding the SCANS frequencies within 4-H curricula, gaps in competencies can be identified and trends can be found and compared to previous studies to find if 4-H curricula have changed. This chapter described the relationship between 4-H curriculum goals and the Secretary's Commission on Achieving Necessary Skills competencies. Additionally, this chapter outlined the purpose and objectives for this study.

CHAPTER 2 LITERATURE REVIEW

As the need increased for youth to possess workforce competencies, a need also emerged to examine the activities used to promote these competencies along with life skills. Because 4-H promotes itself as a community of youth learning life and career development skills, activities used within the program should also be studied. The purpose of this study was to analyze 4-H curricula utilized by Florida 4-H to determine if 4-H curricula utilized SCANS competencies. This chapter gave an outline of the theoretical models within workforce skill development and 4-H youth development. The content of this chapter gave insight into the background of this study, including the setting in which the curricula analyzed is used, the current need for career development, and the development of the study's conceptual framework.

Theoretical Framework

Educational experiences can take on many different appearances and approaches. Some may not even have the outward appearance of being an educational experience. In 1918, Bobbitt divided out educational experiences into two levels, the play-level and the work-level, in "The Curriculum." The play-level serves the purpose of laying the foundation to competencies gained in the work-level leading to the end product which Bobbitt describes as the "fruits of labor" (p. 19). The Play-Work Interaction Model is depicted in Figure 2-1. Both levels of educational experiences work towards the same end as seen within the model, but the difference lies where the person performing the activities is focused upon, the present or the future.

The play-level is not concerned with the end product of the activities or work performed. Usually the play level occurs in childhood and assists in youth gaining foundational skills which later assist in the development of work-level competencies. Some of the foundational skills gained in the play-level are social aptitude, curiosity, and lifelong learning. In this level

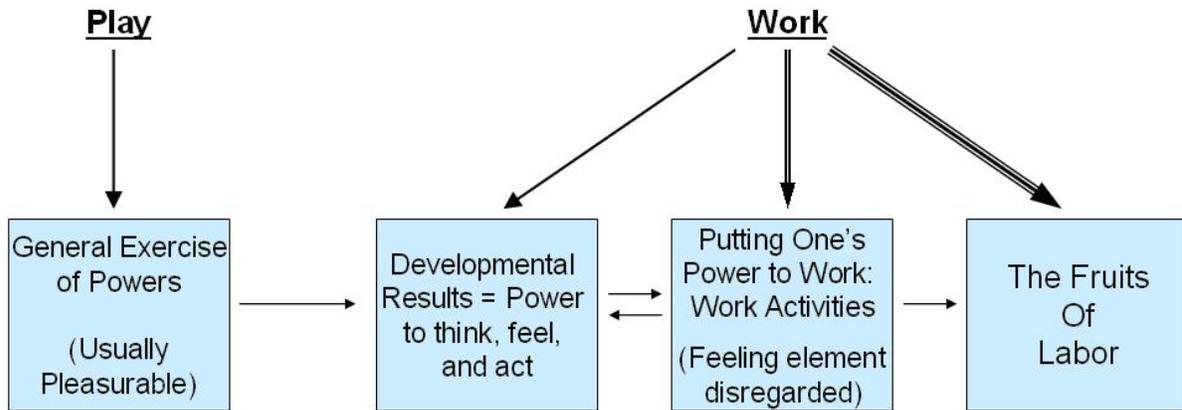


Figure 2-1. Bobbitt's (1918) Play-Work Interaction Model

spontaneity is key, as “greater the spontaneity, other things equal, the greater the values” (Bobbitt, 1918, p. 16).

The work-level is focused upon the “fruits of labor.” Bobbitt explained “fruits of labor” as the ultimate results of work-level activities. An example of “fruits of labor” would be the completion of a project or graduating at the end of four years. Work-level activities show a need for clear objectives as these become the focus of the work performed. These objectives can either be concentrated upon the “developmental results” or “fruits of labor,” either way the work and concentration of that activity is towards the objective or objectives (Bobbitt, 1918). True work-level activities include a sense of responsibility when “putting one’s power to work” (Bobbitt, 1918, p. 19). Work-level activities should “not be something like work; it must be actual work,” which means there should be purpose behind the activities performed to be true work-level activities (Bobbitt, 1918, p. 20). Bobbitt described the need for true work-level activities as “the only possible normal method of preparing for the work of the world” (Bobbitt, 1918, p. 20). No other works or research were found to have expanded upon Bobbitt’s work and the Play-Work Interaction Model. Despite the age of the model, this model lends itself to be used in the analysis of the 4-H program, and in this study, the 4-H curricula.

In connection with Bobbitt’s (1918) model of the Play-Work Interaction Model, 4-H has a similar interaction by guiding youth towards the Fruits of Labor. Activities within the 4-H program include components of both play and work as defined by Bobbitt, as youth are involved in an entire spectrum of activities from the exercising of power all the way to enjoying the fruits of their labor through 4-H. The objectives and outcomes outlined in 4-H curricula correspond with Bobbitt’s Developmental Results section of the model. The impacts of the 4-H program then reflect the Fruits of Labor Bobbitt (1918) outlines within the model.

Conceptual Framework

In connection with Bobbitt’s (1918) Play-Work Interaction Model, 4-H has a similar interaction with guiding youth towards the fruits of labor. This interaction has been represented visually in Figure 2-2.

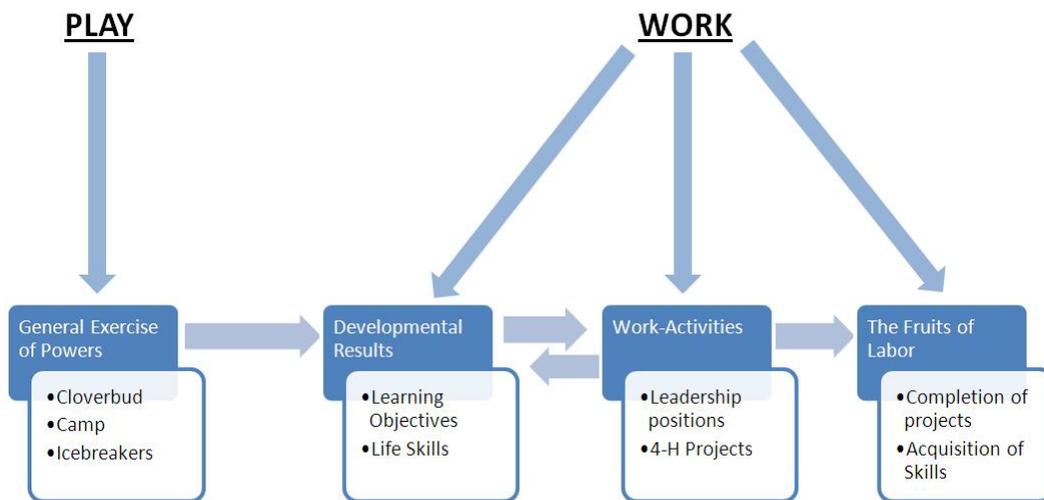


Figure 2-2. 4-H Play-Work Development Model

Through projects, curricula, and other 4-H activities research has shown youth develop the competencies and skills Bobbitt has shown to lead to the fruits of labor. The Play-Level activities in 4-H comprise of activities such as the Cloverbud program (Ferrari, Hogue, & Scheer, 2004), 4-H camps (Arnold, Bourdeau, & Nagele, 2005), and ice breakers/games. Work-Level 4-H

activities include leadership positions and opportunities (Ladewig & Thomas, 1989; Thomas, 2004; Boyd, Herring, & Briers, 1992) and 4-H projects (Ward, 1996). These various means serve as play and work as defined by Bobbitt (1918). In this study the 4-H curricula's objectives and outcomes (Developmental Results) were examined to describe the level of inclusion of the SCANS competencies that lead to the completion of projects and the acquisition of competencies (the Fruits of Labor) at the 4-H Play-Work Development Model.

Elements of Work

Employers seek highly trained employees with honed competencies, but not always in their specific technical areas. In a meta-analysis of career preparation literature, Rateau and Kaufman (2009) found a common theme of the need for improved employability skills. Though the definition of those skills was not consistent, the need was clear. Knight and York (2002) stated "skills were a requirement in a knowledge driven economy with a strong connection between economic success of society and education of the workforce" (as cited in Rateau & Kaufman, 2009). The skills outlined within the study were divided into basic knowledge/skills and applied skills. Basic knowledge/skills encompassed basic school subject skills, including English, mathematics, history, and others. The applied skills included such areas such as critical thinking, teamwork/collaboration, diversity, and leadership. The areas included in the study were very similar to those outlined by the Secretary's Commission on Achieving Necessary Skills report by the United States Department of Labor (1991).

Not only are employers seeking skilled employees, but students have indicated a need for a full spectrum of competencies, skills and abilities in order to feel prepared for the workforce (Kline & Williams, 2007). Forty-six percent of high school graduates felt they lacked what they need to succeed. Furthermore, four in ten students surveyed conveyed feeling unprepared for the workplace. When American manufacturing companies were asked about the preparedness of

students for the workplace, 84% indicated they were lacking (Kline & Williams, 2007). When asked what employability skills were deficient in their employees “most [cited] basic employability skills such as attendance, timeliness, and work ethic as the specific deficiencies” (Kline & Williams, 2007, p. 2).

Secretary’s Commission on Achieving Necessary Skills

In 1991, the United States Department of Labor released a report entitled “What Work Requires of Schools: A Report for America 2000.” This report was the result of the combined efforts of a committee consisting of members of industry, academia, and the government (SCANS, 1993). In 1990, the U.S. Secretary of Labor, Lynn Martin, created the commission to assess the demands of the workplace and to examine whether youth were being prepared for those demands. The committee was named the Secretary’s Commission on Achieving Necessary Skills (SCANS). The acronym SCANS became synonymous with the results of the commission’s reports.

The Secretary’s Commission on Achieving Necessary Skills (SCANS) was formed, and its staff and members—distinguished representatives from education, business, labor, and government—labored mightily to accomplish their mission ... ‘to encourage a high performance economy characterized by high-skills, high-wage employment’ (SCANS, 1992, p. 5).

One of the areas the Commission emphasized was the need for learning of competencies and skills in similar contexts outlined in Bobbitt’s (1918) Play-Work Model. Competencies and skills should be seen as applicable to the students and the objectives created should be set up beyond the theoretical and abstract (SCANS, 1991). This initial report introduced the concept of “workplace know-how” and the competencies and skills needed by youth to succeed in the workplace in the future (p. viii). Five competency areas (see Figure 2-3) were identified as important areas youth need to have education on within schools: resources, interpersonal, information, systems, and technology. These competencies were utilized within this study. Skills

Resources: Identifies, organizes, plans, and allocates resources

- A. Time- Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
- B. Money- Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
- C. Material and Facilities- Acquires, stores, allocates, and uses materials or space efficiently
- D. Human Resources- Assesses skills and distributes work accordingly, evaluates performance and provides feedback

Interpersonal: Works with others

- A. Participates as a Member of a Team- contributes to group effort
- B. Teaches Others New Skills
- C. Serves Clients/Customers- works to satisfy customers' expectations
- D. Exercises Leadership- communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies
- E. Negotiates- works towards agreements involving exchange of resources, resolves divergent interests
- F. Works with Diversity- works well with men and women from diverse backgrounds

Information: Acquires and uses information

- A. Acquires and Evaluates Information
- B. Organizes and Maintains Information
- C. Interprets and Communicates Information
- D. Uses Computers to Process Information

Systems: Understands complex inter-relationships

- A. Understands Systems- knows how social, organizational, and technological systems work and operates effectively with them
- B. Monitors and Corrects Performance- distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions
- C. Improves or Designs Systems- suggests modifications to existing systems and develops new or alternative systems to improve performance

Technology: Works with a variety of technologies

- A. Selects Technology- chooses procedures, tools or equipment including computers and related technologies
- B. Applies Technology to Task- Understands overall intent and proper procedures for setup and operation of equipment
- C. Maintains and Troubleshoots Equipment- Prevents, identifies, or solves problems with equipment including computers and other technologies.

Figure 2-3. SCANS Five Competencies

Note. From "What Work Requires of Schools: A SCANS Report for America 2000," by Secretary's Commission on Achieving Necessary Skills, 1991, U.S. Department of Labor, p. x.

outlined within the study can also be placed into one of three foundation parts: basics skills (reading, writing, math, etc.), thinking skills (creative thinking, problem solving, decision making, etc.), and personal qualities (responsibility, self-esteem, sociability, etc.).

A high performance workplace requires workers who have a solid foundation in the basic literacy and computational skills, in the thinking skills necessary to put knowledge to work, and in the personal qualities that make workers dedicated and trustworthy. But a solid foundation is not enough. High performance workplaces also require competencies: the ability to manage resources, to work amicably and productively with others to acquire and use information, to master complex systems, and to work with a variety of technologies (SCANS, 1992, p. xiii).

SCANS competencies reflect what the workforce required of employees and still requires, as shown in subsequent studies.

Just as the 4-H utilizes the “Learning to Do” motto, SCANS “Learning a Living” report (1992) outlined the same mantra. SCANS’s (1992) “primary message . . . is this: look beyond the schoolhouse to the roles students will play when they leave to become workers, parents, and citizens” (p. xiii). This again goes back to Bobbitt and Kolb’s theories of the development and application of competencies, skills and knowledge in a meaningful and applicable context. The SCANS report went on to explain “teaching should be offered ‘in context,’ that is, students should learn content while solving realistic problems. ‘Learning in order to know’ should not be separated from ‘learning in order to do’” (SCANS, 1992, p. xvi).

Relevance of SCANS incorporation

In *Developing Youth Curriculum Utilizing the Targeting Life Skills Model*, Hendricks (1998) pointed out the connections between TSL and SCANS. Within the TSL model, SCANS competencies are incorporated mainly in the “marketable skills,” but there are other areas of overlap between the two. Nineteen of the skills within the TSL model are also incorporated into the SCANS competencies and skills. The SCANS competencies and skills allow for a greater

focus on the preparation of youth for the workforce and as such can be “used as life skills in the application of learning content” (Hendricks, 1998, p. 76).

The drive to encourage students to pursue college degrees has grown and will continue to grow into the future (Hull, 2005). Meeder and Couch (Hull, 2005) noted the drive has not been completely due to the need for the content gained in a college education, but for the attainment of knowledge, skills, and competencies students do not usually gain from a high school education. Teamwork, oral and written communication, problem-solving, and the use of personal computers are a few competencies expanded upon within college settings. Meeder and Couch (Hull, 2005) stated it is possible for more weight to be put upon a high school education if the quality of learning and acquisition of the aforementioned competencies and skills both increase. “The time when a high school diploma was a sure ticket to a job is within the memory of workers who have not yet retired; yet in many places today a high school diploma is little more than a certificate of attendance” (SCANS, 1992, p. xiv), which only reinforces the need for the development of employability competencies Meeder and Couch (Hull, 2005) outlined. SCANS (1992) noted “workers with more know-how command a higher wage—on average, 58 percent, or \$11,200 a year, higher” (p. xv). This lends itself to the incorporation of skills and competency sets such as those within SCANS in order to improve the quality and value placed upon a secondary education.

The lack of weight placed on a high school education was seen again in a study conducted by the Conference Board (2006). Employers indicated high school graduates did not excel in any basic knowledge or skills and only 10% of employers indicated excellence in two applied skills. Ten basic and applied skills were placed in the deficient category by over 50% of employers in the study. Four-year college graduates fared better but still did not have over 50% of employers

indicating excellence in any skills. One skill employers indicated at every level as being deficient was written communications. Other SCANS competencies indicated as deficient in the study included problem solving, oral communication, teamwork/collaboration, and diversity, as well as leadership at the four year college level. Overall, it was found 42.4% of employers in the study indicated high school graduates were deficient in the skills needed to succeed in the workplace.

The lack of preparedness of high school students showed a need for educational standards to reflect the needs of students to succeed in the workplace, as well as in higher education. SCANS or workforce related competencies and skills have not been adopted into educational standards and assessments on a state level in a majority of the United States (Ananda, 2002). The few states who have incorporated workforce competencies and skills into their academic standards and assessments include California, Kentucky, Maryland, and Virginia. Some of the reasons seemed to be the perceived need to increase student learning in relation to academic standards, but lack of perceived need for workforce readiness from the general public; and the possibility of an increased strain upon state assessments (Ananda, 2002). In relation to the perceived needs, the general public has not voiced a concern, but employers have been voicing concerns about the lack of preparedness of students in the competencies and skills required by the changing workplace. As for the state assessments, it would take a substantial amount of time before new standards could be incorporated into assessments and be measured adequately. Ananda pointed out the hindrances can be overcome in order to assist youth in meeting the need expressed by employers.

Impact of SCANS incorporation

One program that successfully incorporated SCANS occurred in Baltimore and the impact was examined by Blassingame (2000). The schools had high dropout rates and low test scores, but after implementing SCANS both positively changed. The high schools incorporated curricula

developed by the SCANS 2000 Center out of Johns Hopkins University. By 1999, student grade point averages raised, attendance rates increased, and dropout rates decreased (Blassingame, 2000). When students were given a set of tests as part of the Maryland School Performance and Assessment Program, an improvement was shown in this area as well. Blassingame pointed out the incorporation of SCANS will not be the same in every program or school and it is the ability to adapt the incorporation which has allowed SCANS to be so successful both in and out of the classroom. Former SCANS commission executive director, Arnold Packer, said SCANS “has been one of the reports more integrated into curriculum than any other” (as cited in Blassingame, 2000, p. 34).

In 2000, Overtoom created an update on employability competencies and skills, including those in the SCANS reports. SCANS faced many misconceptions in the beginning of its implementation, including:

- SCANS skills and competencies are related only to “entry-level employment” while SCANS apply to all career and education levels,
- SCANS only cover “soft skills” instead of the broad categories of competencies in the report, and
- SCANS conflict with “rigorous academic work” when SCANS can apply to all levels of education (Overtoom, 2000, p. 3).

SCANS not only applies in all these instances but when taught and learned are “consistent with the emerging needs of a world economy in a high-performance work environment” and contribute to optimal learning for youth (p. 3). Overtoom also indicated studies conducted in Nevada and Canada validated employability skills and competencies over time.

Extension youth work readiness programs recognized the need to utilize SCANS skills and competencies. Blalock, Strieter, and Hughes (2006) developed an assessment tool for evaluating SCANS in work readiness programs. The authors found successful work force development

programs incorporated activities which included opportunities for youth to gain and apply the competencies and skills outlined in the SCANS report.

In a longitudinal study, North and Worth (2004) identified trends in technology, interpersonal, and basic communication competencies and skills required in entry level positions between 1992 and 2002. These competencies and skills were defined according to SCANS (1991) definitions. To find trends, North and Worth analyzed classified ads from the eleven year period to find the SCANS competencies and skills included in the job descriptions. Over the 11 years, it was found interpersonal and technology competencies were important in the workplace. Technology was consistently listed in over two thirds of the classified ads analyzed indicating “technology competencies remain important in today’s job market” (North & Worth, 2004, p. 68). North and Worth concluded “today’s workplace continues to demand a changing mix of competencies and skills” including those within SCANS (p. 68). SCANS competencies will remain an important set for employees to possess as “employers consider skills that transfer to be far more important in the workplace because domains of knowledge change rapidly” (North & Worth, p. 60).

In a similar study conducted in the United Kingdom, Bennett (2002) analyzed over 1,000 job advertisements to discern the top skill requirements for careers in the areas of marketing, finance, and human resource management. Of the top ten skill requirements, the top five were reflected in SCANS competencies: communication, IT, organization, teamwork, and interpersonal skills. When examining those skills which appeared more than ten times in the sample, presentation (communication of information) and leadership were also included. Bennett found a correlation between salary and skills required for the career. Skills such as IT, analytical, and organization were found to be correlated with those careers with the highest salary scales.

Coll and Zegwaard (2006) compiled a list of the competencies and skills needed in both the business sector and the science and technology sector. The importance of 24 competencies was rated by employers, students, graduates, and faculty within both sectors. The competencies ranked among the top half for all four groups were teamwork and cooperation, ability and willingness to learn, and personal planning and organizational skills. Employers added eight more competencies for both sectors: flexibility, computer literacy, conceptual thinking, initiative, written communication, information seeking, and achievement orientation. Of all the competencies ranked in the top half by employers, six corresponded with SCANS competencies. Coll and Zegwood pointed out the competencies and skills needed in today and tomorrow's workplace may not all be cultivated within a "purely classroom-based instruction" (p. 51). This can lead to the conclusion that youth development organizations, such as 4-H, can assist in providing opportunities for youth to develop the competencies and skills needed to succeed in the workplace as they can work in settings classroom education may not be able to utilize.

Packer and Sharrar (2003) discussed the future of human resource development in the face of the changing workplace North and West alluded to in their conclusions. Through a case study and discussion of previous research, the authors found lifelong learning and competencies, such as those outlined in SCANS, were still applicable and needed in new hires. Packer and Sharrar stated "the output of SCANS included identifying five problem-solving domains that are crucial to adapting to the changing nature of work" (p. 334). Despite the changes in the workplace in the thirteen years between the study and the creation of SCANS, the problem-solving competencies can assist in creating prepared employees in tomorrow's workforce. There is still room for improvement on the relationship between industry and schools in regard to preparing students for future employment.

Work Preparation Education

Hall and Raffo (2004) found work-related learning does not have many benefits within school settings and does not lend itself to improved motivation or attainment within schools. Within a school setting the researchers examined the work-based program and found it distracted from school efforts both in the classroom itself and on standardized tests. One of the factors positively affecting the youths' attitude towards school and subsequent behaviors was the positive interaction with adults within the program. Hall and Raffo's findings enforce the reasoning behind having a youth organization, such as 4-H, take up career learning as there are no grades or tests tied in with the knowledge and skills gained within the 4-H program. Also within the 4-H program, youth have ample opportunity to have the positive interactions with adults as Hall and Raffo concluded can improve attitudes towards school and their behaviors.

4-H & Bobbitt's Play-Work Interaction Model

The activities, objectives and outcomes, and impacts of the 4-H program correspond with the sections of Bobbitt's (1918) Play-Work Interaction Model. 4-H activities can be divided into the two levels, Play-Level and Work-Level. The objectives and outcomes outlined in 4-H curricula correspond with the Developmental Results section of the Play-Work Interaction Model. The impacts of the 4-H program reflect the "fruits of labor" Bobbitt (1918) outlined within the model. Beginning with the Fruits of Labor, each section of the model was examined in relation to the 4-H program

The Fruits of 4-H Labor

Impact studies of the 4-H program have yielded inconsistent results in the past, but have consistently indicated a positive development of skills and competencies in youth members (El Sawi, 1997; National 4-H Headquarters, 2001). Impact studies of the ability of 4-H to develop leadership and life skills in members were inconclusive in their findings prior to 1995 (El Sawi

& Smith, 1997; Miller & Bowen, 1993). Though positive findings pertaining to skill attainment was found, equally unclear and potentially negative findings were also found (Miller & Bowen, 1993). Beginning in the mid-1990's, impact studies became more conclusive and positive in their findings of the impacts of the 4-H program.

In a 1989 national study, Ladewig and Thomas compared former 4-H members, former youth organization members, and non youth organization members in order to determine the perceived impact of 4-H and other youth organizations. Ladewig and Thomas found 4-H did affect the perceived life skills gained by alumni, yet there was a lack of satisfaction with the leadership opportunities and skills gained from 4-H involvement. 4-H was found to be limiting in youth's access to the development of leadership skills. Fifty-three percent of alumni involved with other organizations in addition to 4-H indicated they gained more leadership skills and responsibility in those other organizations.

In 1993, Miller and Bowen conducted an ex post facto survey study of all Ohio public school students to determine if there were differences between 4-H and non 4-H members' competency, coping, and contributory life skills. Miller and Bowen found there were no significant differences between 4-H and non-4-H members' self-perceived life skill development. Despite finding no significant difference between the two groups, Miller and Bowen concluded 4-H had an impact upon the life skill development in youth, again displaying the discrepancies found in early impact studies.

Cantrell, Heinsoh, and Doebler (1989) conducted a Pennsylvania 4-H impact study of teen 4-H members. The relationships between life skill development and various 4-H experiences were examined. The findings indicated 4-H contributed to the youths' life skill development, but mainly for those activities above the club level. Impact being concentrated above the local level

can be an issue for 4-H and can greatly limit the potential impact on youth as many of the youth only participate at the local level (especially after-school program participants).

Matulis, Hedges, Barrick, and Smith (1988) examined career skills gained by 4-H members and found 4-H only did a mediocre job at preparing youth for choosing a career and securing a job. Matulis et al. found 4-H had a positive impact upon self-awareness and basic skill acquisition, but lacked impact upon skills required to secure a position (i.e. job interviewing, applying for jobs, and preparing a resume). They also reported low support in career planning on the part of 4-H leaders, 4-H agent, and other 4-H members. Matulis et al. recommended continued and expanded career awareness for nine to twelve year olds and career exploration for teens within the 4-H program. Matulis et al. also recommended those efforts should continue and even a greater emphasis placed in the areas of work competency and skill development.

State and national impact studies

The National 4-H Headquarters issued a call in 2001 to states to conduct impact studies in order to answer the question “What positive outcomes in youth result from the presence of critical elements in a 4-H experience?” on a state and national level (2001, p. 6). National 4-H desired to gain data from each state and gain a national view of the impacts of 4-H. When the call was issued, five states had completed or were in the process of conducting a formal impact study following the guidelines that National 4-H was advocating. Arizona and Kansas were in the beginning stages of the process and were developing their evaluation instruments and procedures. Missouri, Montana, and South Dakota gathered partial data and reported 4-H members gained positive outcomes from their 4-H involvement (National 4-H Headquarters, 2001). Missouri reported 4-H assisted members in “learning new things, in planning, goal, setting and decision-making” (National 4-H Headquarters, 2001, p. 35). Clague (n.d., as cited in National 4-H Headquarters, 2001) found 4-H in South Dakota gave members the opportunity to

“value and practice service for others” as well as opportunities for “engagement in learning” (p. 35).

Montana conducted an impact study modeled after the National 4-H evaluation process (Astroth, 2001). Astroth found 4-H’s impact was far reaching. The areas with the greatest impacts were confidence, connectedness, competence, care, and compassion. 4-H reached youth of all backgrounds in the program. 4-H impact studies in Florida found positive correlations between involvement and life skill development (Thomas, 2004; UF/IFAS Extension, 2007). Thomas (2004) found positive correlations between 4-H involvement and the constructs of belonging, service and leadership, self development, and positive identity. Fitzpatrick, Gagne, Jones, Loble, and Phelps (2005) conducted an impact study within Maine and examined alumni of the 4-H program along with volunteers of the program. It was found alumni felt 4-H had played an import role in their life skill development.

Colorado’s impact study found a similar trend; 4-H members were less likely to be involved with at risk behaviors (Goodwin, Carroll, & Oliver, 2007). 4-H members had a positive outlook on life and the world. 4-H members succeeded in school and received more “A”s than any other students. The impact study conducted in Idaho found involvement within the 4-H program decreased the likelihood of youth participating in at risk behavior (Goodwin, Barnett, Pike, Peutz, Lanting, & Ward, 2005). Other areas were found to be positively influenced by the 4-H program including higher grades, increased community involvement, and more school leadership positions. Goodwin et al. stated “the bottom line observation by the investigators is that 4-H does make a difference in the lives of young people” (¶ 35).

General 4-H and youth organization impacts

Significant differences have been found in comparative studies between 4-H members and non-4-H members. Boyd, Herring, and Briers (1992) compared the leadership skill development

between 4-H and non-4-H members and found 4-H members had significantly higher perceptions of their own development in five leadership life skill areas. Taking into account the level of participation in 4-H, the only leadership life skill area that participation affected was leadership, which can be tied to the amount of leadership experience members have within 4-H.

Another comparative study was conducted examining life skill development within 4-H and other youth development organizations (Maass, Wilken, Jordan, Culen, & Place, 2006). Alumni rated 4-H significantly higher on overall life skill development than other youth development organizations. The areas with the greatest perceived influence from 4-H were public speaking, record keeping, healthy lifestyle choices, learning to learn, and leadership.

Tufts University has conducted a longitudinal study of the impacts of out-of-school time (OST) activities, including 4-H, upon positive youth development (Lerner, Lerner, & Phelps, 2007). The study included data from 4404 youth from 34 states over a four year period. The study examined the ability of the youth to “select positive life goals, optimize what he or she needs to achieve these goals, and compensate for obstacles that stood in the way,” which created an index score (Lerner, Lerner, & Phelps, p. 9). Lerner et al. found a combination of sports and youth development programs, including 4-H, promoted “positive development and . . . [prevented] problems” (p. 11). Lerner et al. found trends which indicated those involved within 4-H for at least one year between their fifth and eighth grade years had an overall higher positive youth development than those who were not. In comparison, 4-H members had significant differences with youth involved in other extracurricular activities. In relation to college aspirations, 4-H members were 1.6 times more likely to indicate plans to attend college. When examining the long-term trajectories for positive youth development and contribution, 4-H members were 1.5 and 3.5 times, respectively, more likely to be in the highest trajectory for

each. For depressive symptoms and risk behavior trajectories, 4-H members were 1.3 times more likely to be in the lowest trajectory in comparison to their peers. Overall, Lerner et al. found 4-H had a large impact upon the development of youth involved in the program outside of basic skill acquisition.

Life skill development as perceived by alumni was also examined by Fox, Schroeder, and Lodl (2003). Focus groups comprised of Nebraska 4-H alumni from 17 counties were utilized in analyzing their perceptions of the impact of their participation in 4-H clubs. Alumni indicated involvement in 4-H clubs greatly or somewhat influenced the development of all 32 life skills examined in the study (Fox, Schroeder, & Lodl, 2003). The areas alumni indicated 4-H had the greatest influence were responsibility (58.8% of respondents), product production skills (54.2%), ability to handle competition (53.8%), and ability to meet new people (50.3%). In addition to these areas, alumni indicated 4-H had an influence on the development of other skills, including technical, communication, leadership, personal and social, and relationship skills.

Mulroy and Kraimer-Rickaby (2006) identified themes in the development of life skills in members, and factors contributing to general 4-H involvement, utilizing 49 studies pertaining to the impact of the 4-H program. Sustained involvement within the 4-H program was found to be a critical component to the development of life skills. Leadership roles contributed the most to the acquisition of the most life skills (Mulroy & Kraimer-Rickaby, 2006). Mulroy and Kraimer-Rickaby found the higher the level of participation or leadership the more likely 4-H members were to indicate 4-H was an important piece in the development of life and leadership skills.

Play-Level Activities in 4-H

Activities such as 4-H camps, the Cloverbud program, and icebreakers can be categorized under the Play-Level section of Bobbitt's (1918) Play-Work Interaction Model as these activities do not often have the developmental objectives as the focus, if there are any objectives set forth.

Arnold, Bourdeau, and Nagele (2005) examined the impact of 4-H camping programs in Oregon and found the camp setting created an environment to foster life skills development and social growth, as well as allowing youth to experience nature. Of the eight skills examined, youth strongly indicated their camp experience had an impact upon developing those skills, including cooperating with others, talking with others, working within a team, and responsibility.

The impact of the 4-H program has not been limited to those who are “regular” members, which is generally third to twelfth grade age youth, but can begin even earlier. With the Cloverbud program, children are able to participate in 4-H on a limited basis and still gain life skills at an early age. Ferrari, Hogue, and Scheer (2004) examined the perceptions of life skill development by parents of Cloverbud members and found there was a positive perception of the program overall and of the skills gained by their children. The skills highlighted were in the areas of social interaction, learning to learn, self-confidence, self-care, and self-direction (Ferrari, Hogue, & Scheer, 2004). Parents felt the activities within the Cloverbud 4-H program were “fun, but [Cloverbuds] are learning while having fun” and fit the needs of the children (Ferrari, Hogue, & Scheer, ¶ 16). Programs such as these can be placed within Bobbitt’s (1918) play-level within the Play-Work Interaction Model (1918), as the Cloverbud program lays the groundwork for subsequent 4-H activities within the work-level.

Work-Level Activities in 4-H

4-H projects and leadership opportunities serve as Work-Level Activities as they have purposes, goals and objectives in mind when carrying out the activities or responsibilities within each. 4-H project areas have proven to be important in the development of life skills for 4-H members. Ward (1996) found the 4-H animal science project area positively impacted the development of life skills, such as responsibility, relating to others, and public speaking. When asked which activities influenced life skill development 4-H members indicated shows or

exhibitions and judging events as the highest in development. Activities outside of the 4-H club had influence upon the life skill development of youth members.

Other activities outside of basic 4-H project work have shown to have positive impacts upon various aspects of youth development. Another experience not within basic projects is service as an officer. A study of State 4-H Council members found members gained experiences and skills within areas such as decision making, teamwork, relationships, and communications (Bruce, Boyd, & Dooley, 2004). State 4-H Council members expressed the ability to experience self-growth and self-discovery through their service on the council.

Developmental Results of 4-H

Skills to be taught to youth come in a multitude of modes, from curricula to informal conversations to self-discovery. Within the confines of this study, curricula were analyzed for the inclusion of the skills needed by youth to succeed in the workplace. Curriculum assessment in 4-H materials and in SCANS implementation has been conducted on a limited basis.

Prior to the creation of the Targeting Life Skills model (Hendricks, 2006), El Sawi and Smith (1997) performed an analysis of 4-H curricula to examine the inclusion of SCANS competencies and skills in both the curriculum's objectives and the activities, as well as the cognitive level at which the competencies and skills appeared in the curricula. Through a content analysis, El Sawi and Smith found 4-H was lacking or inconsistent in the inclusion of SCANS competencies and skills in the 4-H curricula. In regards to SCANS, many competencies and skills were not found very frequently through the curricula. The cognitive levels for the majority of the materials were not within the top three levels of Bloom's Taxonomy. Another finding was the discrepancy between those competencies and skills outlined in the objectives of the curricula and the actual activities within the curricula. Not having the SCANS competencies and skills within the 4-H curricula materials created a problem for youth and the 4-H program as "SCANS

competencies cannot be widely taught unless teachers have instructional materials” (SCANS, 1992, p. xvii), which can also be said about agents and volunteers have the proper materials.

In 2007, National 4-H held the National 4-H Curriculum Summit where different aspects of the national curricula were examined, including a report of the results of the National 4-H Curriculum Survey. Astroth (2007) and Schaff (2007) outlined the strengths and concerns curricula stakeholders expressed about National 4-H curricula through the survey. One common positive theme within the responses about the national 4-H curricula was the successful emphasis of life skills within the materials. This was rated as the greatest strength of the curricula by 59.2% of respondents and 86% indicated this should be an assumed component of all national 4-H curricula (Astroth, 2007). Astroth found the changes respondents demanded to increase the helpfulness of the curricula included updating the material as well as make curricula more relevant. With 4-H’s strength and documented impact in skill development, studies looking into the relevance of the competencies and skills included should be conducted.

Summary

An overview of the theory of Bobbitt (1918) has shown how play and work activities, such as those within the 4-H program, can develop the ability for youth to eventually reap the fruits of labor. Connecting Bobbitt with the SCANS competencies, Targeting Life Skills Model, and the Experiential Learning Model has shown the potential for 4-H to assist in the development of life skills in youth members. Through many impact studies of the 4-H program, findings have shown 4-H does develop life skills in youth participants.

CHAPTER 3 METHODOLOGY

This study examined the inclusion of SCANS competencies within 4-H curricula. The inclusion of SCANS in the career development and popular project curricula was examined and compared between the career development and popular project curriculum groups.

The United States faces a challenge with the decrease of students' interest in various career fields, such as science, engineering, and technology. 4-H curricula have not historically been successful in including career competencies. Recent attention has been brought to the areas of science, engineering, and technology within 4-H programming, thus allowing for 4-H to assist in addressing the challenge of preparing students to enter into these career fields. As one avenue for developing career competencies, 4-H curricula should be analyzed in order to determine if career competencies are now being included.

This chapter gives an outline of the methodology used to analyze 4-H curricula for the inclusion of SCANS. A basic interpretive qualitative approach was taken in this study, utilizing content analysis to describe and discover the extent 4-H curricula included SCANS (Ary, Jacobs, Razavieh, & Sorensen, 2006; Dooley, 2007; Merriam, 1998).

Research Design

In basic interpretive qualitative research, the researcher includes description, interpretation, and understanding in the form of recurrent patterns, themes or categories (Ary, Jacobs, Razavieh, & Sorensen, 2006; Dooley, 2007; Merriam, 1998). In the use of basic interpretive qualitative research, the researcher was able to create an overall view of the career preparation content within 4-H curricula through the use of content analysis utilizing the SCANS competencies as coding categories. Ary et al. (2006) described the use of a basic interpretive qualitative research design as allowing the researcher to examine a "particular point of view" of the context to be

examined (p. 463). The researcher is also able to interpret the data “through his or her own disciplinary lens” (p. 464), which allows for the examination of the 4-H curricula objectives and outcomes utilizing the SCANS competencies.

Selection of Data Sources

This study examined 4-H curricula utilized by members and Extension Agents within Florida 4-H Youth Development. A purposive sample of curricula was conducted. According to Merriam (1998), purposive sampling is used when “the investigator wants to discover, understand, and gain insight” (p. 61). These were the objectives of the researcher in examining the 4-H curricula, thus making a purposive sample appropriate for this study. The researcher examined the 4-H career development curricula as well as the curricula of the five project areas with the highest enrollments within the Florida 4-H program. The highest enrolled projects were utilized because of the vast number of youth involved in each project area. Florida 4-H curricula undergo the same development and approval process thus allowing for the use and application of the findings to those of other Florida 4-H curricula. The same goes for 4-H curricula developed by the Cooperative Curriculum Service, Inc.

The curricula utilized in the study were identified by the Florida 4-H Project Enrollment Guide Web site (Florida 4-H Youth Development, 2008). There were four 4-H career development curricula used in this study. The 2007 Florida 4-H ES-237 was utilized to determine the five project areas with the highest enrollment. The ES-237 is a report on 4-H members and volunteers required of every county and state 4-H program and is collected annually by the National 4-H Headquarters along with each state 4-H program (National 4-H Headquarters, 2009). The data in the ES-237 includes information such as 4-H members’ and volunteers’ gender, residence, ethnicity, age, and 4-H projects in which the member is involved. The five most popular project areas identified were swine ($n=3283$), horse ($n=2989$), leisure arts

($n=2570$), outdoor education ($n=1966$), and community development and service ($n=1847$) (Florida 4-H, 2007). A complete list of projects and enrollment figures can be found in Appendix A. There were 24 4-H curricula used for the top Florida 4-H projects and four for the career development project. The curricula utilized in this study are listed in Appendix B. Twenty-eight 4-H curricula were analyzed in the study (see Table 3-1).

Table 3-1. Characteristics of Curricula Included in the Content Analysis

Characteristic	<i>f</i>	Percentage
PUBLICATION ORGANIZATION		
National 4-H Cooperative Curriculum Service	21	75.0%
University of Florida/IFAS Extension	7	25.0%
4-H PROJECT		
Career Development	4	14.3%
Swine	3	10.7%
Horse	5	17.9%
Outdoor Education	8	28.6%
Leisure Arts	5	17.9%
Community Service/Development	3	10.7%
INTENDED USER		
Member/Participant	23	82.1%
Volunteer/Leader	7	25.0%
INTENDED AGE GROUP		
Junior (8-10 years)	7	25.0%
Intermediate (11-13 years)	11	39.3%
Senior (14-18 years)	9	32.1%
No Specified Age Group	5	17.9%

Of the curricula analyzed in the study, 75% ($n=21$) were published by the National 4-H Cooperative Curriculum Service (CCS) and 25% ($n=7$) were published by the University of Florida/IFAS Extension (UF/IFAS Extension). Of the 4-H curricula, outdoor education constituted 28.6% of the curricula ($n=8$). Swine and Community Service/Development curricula were 10.7% ($n=3$) each. The majority of the curricula were created for use by 4-H members/participants ($n=23$). The curricula's intended age groups were divided into three main groups: junior (3-5th grade), intermediate (6-8th grade), and senior (9-12th grade). There was also a "no specified age" group. The intermediate level constituted 39.3% ($n=11$) of the curricula

analyzed in the study. There were seven curricula omitted from the study for lack of clear objectives and/or outcomes for the materials (see Appendix C).

Data Analysis

Content Analysis

Content analysis is a “research method applied to written or visual materials for the purpose of identifying specified characteristics of the material” (Ary, Jacobs, Razavieh, & Sorensen, 2006, pg. 464). Ary et al. identified numerous purposes for the use of content analysis. For the purpose of this study, content analysis was used to “describe prevailing practices” and “to discover the relative importance of . . . certain topics” in relation to the inclusion of SCANS competencies in 4-H curricula (Ary, Jacobs, Razavieh, & Sorensen, 2006, p. 464).

This study utilized a coding sheet for each curriculum material to guide the content analysis process (see Appendix D). The coding sheet included the coding categories, which were the SCANS competencies, along with general information about each curriculum. The general information gathered from each curriculum included: (a) title, (b) author, (c) publication organization or company, (d) career preparation or popular project, (e) project area, (f) use by member or volunteer, and (g) intended age group.

To ensure credibility, the coding sheet was reviewed by a panel of experts. This was done to ensure credibility (face validity) by gathering information that was accurate and adequate to address the research objectives, which then contributed to the trustworthiness of the study (Lincoln & Guba, 1985).

Upon the completion of the coding sheet, each curriculum material was analyzed individually by the researcher. First, the general information was recorded for each piece on the coding sheet. The objectives of each curriculum piece were then coded for the inclusion of the

SCANS competencies according to the descriptions given by “What Work Requires of Schools” report (SCANS, 1991), see Table 3-2.

Table 3-2. SCANS Five Competencies

Coding categories

I.	Resources
A.	Time
B.	Money
C.	Material and Facilities
D.	Human Resources
II.	Interpersonal
A.	Participates as a Member of a Team
B.	Teachers Others New Skills
C.	Serves Clients/Customers
D.	Exercises Leadership
E.	Negotiates
F.	Works with Diversity
III.	Information
A.	Acquires and Evaluates Information
B.	Organizes and Maintains Information
C.	Interprets and Communicates Information
D.	Uses Computers to Process Information
IV.	Systems
A.	Understands Systems
B.	Monitors and Corrects Performance
C.	Improves or Designs Systems
V.	Technology
A.	Selects Technology
B.	Applies Technology to Task
C.	Maintains and Troubleshoots Equipment

Note. From “What Work Requires of Schools: A SCANS Report for America 2000,” by Secretary’s Commission on Achieving Necessary Skills, 1991, U.S. Department of Labor, p. x.

The SCANS competencies served as clear, concise coding categories, which ensured greater reliability. Riffe, Lacy, and Fico (2005) stated “reliability in content analysis starts with the category and subcategory definitions” (p. 123). Utilizing the descriptions provided by the SCANS report (1991) “reliability also [was] easier to achieve when a concept is more, rather than less, manifest because coders will more easily recognize the concepts in the content” (Riffe,

Lacy, & Fico, 2005, p. 125). Berelson (1952) added “content analysis stands or falls by its categories” (p. 147).

Once the curricula had been analyzed, the data were entered into Windows Excel® for general analysis and the discovery of themes. The frequencies and percentages of the SCANS competencies were found in order to assist in finding the overarching themes within the data.

Trustworthiness

Within qualitative research, trustworthiness outlines “the degree of confidence that the findings of the study represent the respondents and their context” (Dooley, 2007, ¶ 31).

Components of trustworthiness include credibility, transferability, dependability, and confirmability.

Credibility

The equivalent of quantitative research’s internal validity within qualitative research is credibility. Lincoln and Guba (1985) stated credibility is “to carry out the inquiry in such a way that the probability that the findings will be found to be credible” (p. 296). The methods for ensuring credibility include “activities that make it more likely that credibility findings and interpretations will be produced” and “an activity that provides an external check on the inquiry process” (Lincoln & Guba, p. 301). To ensure credibility “prolonged engagement,” “triangulation,” and “peer debriefing” (Lincoln & Guba, p. 301) were carried out throughout the research process. A thorough literature review of the relationship between the SCANS reports and recommendations (SCANS, 1991; 1992; 1993) and the 4-H Targeting Life Skills Model (1998) was conducted prior to the beginning of data collection which served as prolonged engagement. The literature review served to “learn the ‘culture’” (Lincoln & Guba, p. 301) or the context in which the subjects lie. The literature review established an understanding of the context, the 4-H program, and the SCANS competencies observed during data collection.

Triangulation and peer debriefing were carried out through an expert panel analysis of select curricula and an accompanied meeting to discuss and compare the analysis by the researcher and the expert panel. Triangulation in this manner served “to add to the probability that findings will be found to be credible” (Lincoln & Guba, p. 307). These activities also served as peer debriefing as they allowed the researcher to expose herself “to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit in the inquirer’s mind” (Lincoln & Guba, p. 308). Through the meetings, discussions would center around clarifying results found and ensuring the researcher was remaining concentrated upon the inquiry. Differences in analysis were also discussed and the descriptions for each coding category were amended as the need arose.

Transferability

The applicability of the study to other situations or contexts is the transferability in qualitative research (Dooley, 2007). The term most closely related within quantitative research is external validity. Within qualitative research, the context in which the observations and analysis take place does not always allow for transferability as the observations and analysis made are limited to the “time and context in which they were found” (Lincoln & Guba, 1985, p. 316). Lincoln and Guba indicated it is “not the [researcher’s] task to provide an index of transferability; it is his or her responsibility to provide the data base that makes transferability judgments possible on the part of potential appliers” (p. 316). In order to build the data base necessary for application to other contexts or settings, thick descriptions of the observed SCANS competencies within the 4-H curricula were recorded and reported. Examples of objectives and outcomes were provided for each SCANS competency category.

Dependability

Dependability is the consistency of the study as well as the reliability. Dependability is strongly tied with credibility and thus the steps taken to ensure credibility built the foundation for dependability in the study (Lincoln & Guba, 1985, p. 316). In addition to the prolonged engagement, triangulation, and peer debriefing, an “inquiry audit” was conducted to “examine the process,” “attest to the dependability,” and “examine the product” of the research (Lincoln & Guba, p. 318). The components of the inquiry audit were established through the expert panel meetings outlined previously along with thesis committee meetings, the final thesis submission, and the presentation of the research findings in a thesis defense. Prior to data collection, the methodology and data collection forms were examined and discussed to ensure the proper steps would be taken to measure the objectives set forth for the research. The members of the expert panel and the thesis committee served as the “auditors” of the process, dependability, and final product of the entire research process.

Confirmability

Confirmability ensures the data base, as well as conclusions, interpretations, and recommendations, can be traced back to their sources (Dooley, 2007; Lincoln & Guba, 1985). The inquiry audit served as one method to establish confirmability of the study (Lincoln & Guba, 1985). The other method employed was an audit trail. The audit trail served as a record of steps taken throughout the research process. Materials serving as pieces of the audit trail include preliminary research proposal drafts, coding sheet drafts (including edits), notes from expert panel and thesis committee meetings, personal notes taken during analysis, and completed coding sheets. These materials serve as a means to trace observations, conclusions, interpretations, and recommendations back to their source, thus confirming the research completed.

Researcher Bias Statement

The researcher first gained experience within the 4-H program in 2000 as a member of the Van Zandt County 4-H Program. Through the program, she was involved on the local, county, district, and state levels. The program areas the researcher was engaged in were sheep, leadership, horticulture, and horse. During her undergraduate career at Texas Tech University and her graduate career at the University of Florida, she was involved with the Collegiate 4-H program both as a member and a graduate advisor. Within the Extension Education specialization in the Agricultural Education and Communication Master of Science program, the researcher gained knowledge of the 4-H program through formal coursework, which included topics such as Cooperative Extension history, curriculum development, program development, and formal and nonformal teaching methods.

Knowledge of curriculum development was developed mainly in the undergraduate education gained at Texas Tech University within the Interdisciplinary Agriculture Bachelors program within the Agricultural Education and Communication (AEC) department. Basic education coursework within the AEC department and the College of Education gave the researcher a fundamental knowledge of curricula selection and development.

Summary

This chapter gave an overview of the basic qualitative methodology employed in analyzing 4-H curricula. Content analysis was conducted upon the curricula, utilizing the SCANS competencies as the coding categories. Measures were taken to ensure trustworthiness within the study, including credibility, transferability, dependability, and confirmability. The data were then combined and analyzed to find overarching themes in relation to SCANS.

CHAPTER 4 RESEARCH FINDINGS

With the challenge of increasing American students' interests in various career fields, there is a need for 4-H to assist in addressing this challenge. 4-H curricula have not historically been successful in including career competencies. Recent attention has been brought to the areas of science, engineering, and technology within 4-H programming, thus reinforcing the need to examine the efforts of 4-H in preparing youth for careers in these areas.

This study examined the inclusion of SCANS competencies within 4-H curricula. The inclusion of SCANS in the career development and popular project curricula was examined and compared between the career development and popular project curriculum groups through a content analysis. This chapter details the findings observed through the content analysis of 4-H curricula. Within this chapter, the use of the word "curricula" implies a group of individual curriculum materials, while "curriculum" indicates an individual curriculum material.

Objective 1. Describe the Inclusion of SCANS Competencies

In the content analysis process, the frequency of the occurrence of SCANS competencies within the learning objectives/outcomes were recorded. All 20 SCANS competencies were observed within the 28 curricula analyzed.

The "information" competency category includes competencies in which one "acquires and uses information" (SCANS, 1991, p. x). Objectives observed within this category included "critical thinking," "problem solving," "learning to learn," "public communication," "communicating with others," "organizing and interpreting information," "evaluation skills," and "presentation skills." The frequency of the "information" competencies was 435.

The "resources" competency category contains competencies in which one "identifies, organizes, plans, and allocates resources" (SCANS, 1991, p. x). Examples of the type of

objectives found within the “resources” competency category included “goal setting,” “wise use of resources,” “planning and organizing,” “evaluate what resources they will need to start their business,” and “calculate a financial goal.” The overall frequency of the “resources” competencies was 342.

The “interpersonal” competency category is comprised of competencies in which one “works with others” (SCANS, 1991, p. x). Objectives commonly observed within the “interpersonal” competency category included “understanding perspectives on an issue,” “teamwork,” “leading self and others,” “contributing to a group effort,” and “teaching others.” The total frequency of “interpersonal” competencies was 97.

The “technology” competency category consists of competencies in which one “works with a variety of technologies” (SCANS, 1991, p. x). Objectives commonly found within this category included “understand the importance of tool maintenance,” “describe how, why, and in what circumstances tools are used,” and “selecting personal gear for base camping.” The overall frequency of the “technology” competencies was 52.

The “systems” competency category contains competencies in which one “understands complex inter-relationships” (SCANS, 1991, p. x). Objectives commonly observed within the “systems” competency category included “identify the different costs associated with running a business,” “learning about market forces and how they affect what you can charge/earn,” and “describe the effects of competition.” The total frequency of the “systems” competency category was 43.

Objective 2. Describe the Frequencies of SCANS Competencies Within Each Project Area Curricula

The project area with the highest frequency of SCANS competencies was Workforce Development ($f=339$). The lowest frequency of SCANS competencies was found in the Swine

project area ($f=76$). The highest average frequency of competencies per curriculum was in Workforce Development ($f=84.75$) and lowest in Outdoor Education ($f=19.25$).

The competency category observed most frequently was “information” ($f=435$), while the least frequent category observed was “systems” ($f=33$) as seen in Table 4-1.

Table 4-1. SCANS Frequencies within the 4-H Project Area Curricula

Competency Category	<i>f</i>						Total <i>f</i>
	Workforce Development	Swine	Horse	Outdoor Education	Community Service/ Development	Leisure Arts	
Resources	101	29	43	93	30	46	342
Interpersonal	41	6	10	12	4	24	97
Information	143	41	86	41	56	68	435
Systems	37	0	5	0	1	0	43
Technology	37	0	3	8	0	4	52
Total	339	76	147	154	91	142	949

The average frequency per individual competency within each competency area for each project is presented in Table 4-2. Within all project areas, except for Outdoor Education, the “information” competency category had the highest average frequency within the curricula analyzed with a range of 10.25-35.75. For Outdoor Education, the “resources” competency category was highest ($m=23.25$). The lowest frequency categories varied among individual project areas.

Table 4-2. Average SCANS Competency Frequencies per Category and Project

Competency Category	Average Frequency					
	Workforce Development	Swine	Horse	Outdoor Education	Community Service/ Development	Leisure Arts
Resources	25.25	7.25	10.75	23.25	7.50	11.50
Interpersonal	6.83	0.00	1.67	2.00	0.67	4.00
Information	35.75	10.25	21.50	10.25	14.00	17.00
Systems	9.00	0.00	1.67	0.00	0.33	0.00
Technology	9.00	0.00	1.00	2.67	0.00	1.33

Workforce Development Project

Four curricula were analyzed within the 4-H workforce development project area, as seen in Table 4-3. The competencies with the highest frequencies in this area were “information-acquires and evaluates information” ($f=76$), “information- interprets and communicates information” ($f=49$), and “resources-money” ($f=38$). The competencies with the lowest frequencies were “interpersonal-works with diversity” ($f=1$), “information-uses computers to process information” ($f=2$), and “systems-improves or designs systems” ($f=2$).

Table 4-3. SCANS Frequencies within the 4-H Workforce Development Project Curricula

Competency	<i>f</i>				Total <i>f</i>
	Mow for Money	Get in the Act	Lift Off	Be the "e"	
RESOURCES					
Time	10	1	1	11	23
Money	18	0	0	20	38
Materials & Facilities	9	0	0	10	19
Human Resources	4	0	1	16	21
INTERPERSONAL					
Team	4	2	0	3	9
Teaches Others	2	0	0	2	4
Serves Clients	6	0	0	4	10
Exercises Leadership	6	0	0	6	12
Negotiates	5	0	0	0	5
Works with Diversity	0	0	0	1	1
INFORMATION					
Acquires & Evaluates Information	55	2	2	17	76
Organizes & Maintains Information	9	0	2	5	16
Interprets & Communicates Information	26	2	0	21	49
Uses Computers to Process Information	0	0	0	2	2
SYSTEMS					
Understands Systems	7	0	1	7	15
Monitors & Corrects Performance	9	0	0	1	10
Improves or Designs Systems	0	0	0	2	2
TECHNOLOGY					
Selects Technology	5	0	0	0	5
Applies Technology	10	0	0	0	10
Maintains & Troubleshoots	12	0	0	0	12

The competency category with the highest average frequency per competency was “information” ($f=35.8$). The categories with the lowest average frequency per competency was “systems” and “technology” with $f=9.0$ each.

The “Mow for Money” curriculum included the highest frequency of competencies ($f=197$) as well as the highest number of individual competencies present ($n=18$), as seen in Table 4-4. The lowest frequency of individual competencies was found in the “Get in the Act” and “Lift Off” curricula ($f=7$). The curriculum with the lowest number of individual competencies present was “Get in the Act” ($n=4$). Overall, the Workforce Development project curricula had a frequency of 339 occurrences of competencies within the objectives and all 20 SCANS competencies present.

Table 4-4. Total Frequencies and Competencies Present within the Workforce Development Project Curricula

Curriculum	Total f	Competencies Present
Mow for Money	197	18
Be the "E"	128	16
Get in the Act	7	4
Lift Off	7	5
Total	339	20

Objectives commonly found within the Workforce Development project curricula included “developing teamwork,” “goal setting,” “calculate a financial goal,” “Describe how, why, and in what circumstances tools are used,” “decision making,” “describe the effects of competition,” and “identify the different costs of running a business.”

Swine Project

There were three curricula analyzed for the 4-H Swine project, as seen in Table 4-5. The competencies with the highest frequencies were “information- interprets and communicates information” ($f=22$) and “information- acquires and evaluates information” ($f=14$). Ten competencies were completely absent from the swine project, including the entire “systems” and

“technology” categories, three “interpersonal” competencies, and one “information” competency.

Table 4-5. SCANS Frequencies within the 4-H Swine Project Curricula

Competency	<i>f</i>			Total <i>f</i>
	The Incredible Pig	Putting the Oink in Pig	Going Whole Hog	
RESOURCES				
Time	3	2	1	6
Money	4	2	1	7
Materials & Facilities	4	3	2	9
Human Resources	3	3	1	7
INTERPERSONAL				
Team	0	0	2	2
Teaches Others	0	0	1	1
Serves Clients	1	1	1	3
Exercises Leadership	0	0	0	0
Negotiates	0	0	0	0
Works with Diversity	0	0	0	0
INFORMATION				
Acquires & Evaluates Information	5	8	1	14
Organizes & Maintains Information	2	3	0	5
Interprets & Communicates Information	7	7	8	22
Uses Computers to Process Information	0	0	0	0
SYSTEMS				
Understands Systems	0	0	0	0
Monitors & Corrects Performance	0	0	0	0
Improves or Designs Systems	0	0	0	0
TECHNOLOGY				
Selects Technology	0	0	0	0
Applies Technology	0	0	0	0
Maintains & Troubleshoots	0	0	0	0

The competency category with the highest average frequency per competency was “information” ($m=10.5$).

In Table 4-6, “The Incredible Pig” and “Putting the Oink Back in Pig” are shown as having the highest frequency of SCANS competencies with 29 occurrences each, but the lowest number

of individual competencies ($n=8$). “Going Whole Hog” had the lowest frequency of competencies ($f=18$), yet had the highest number of individual competencies ($n=9$). Overall, the Swine project curricula had 10 individual competencies presented 76 times.

Table 4-6. Total Frequencies and Competencies Present within the Swine Project Curricula

Curriculum	Total f	Competencies Present
The Incredible Pig	29	8
Putting the Oink in Pig	29	8
Going Whole Hog	18	9
Total	76	10

Curricula objectives observed within the Swine project included “communicating with others,” “plan a facility to keep swine safe and healthy,” “recognizing differences,” “learning to learn through games,” “planning and organizing,” “problem solving,” and “relating to others.”

Horse Project

In the Horse project curricula, five curricula were analyzed (see Table 4-7). The competencies with the highest frequencies were “information- interprets and communicates information” ($f=40$) and “information- acquire and evaluates information” ($f=33$). The competencies absent from the horse project curricula were “interpersonal- serves clients,” “interpersonal- negotiates,” “interpersonal- works with diversity,” “information- uses computers to process information,” and “technology- maintains and troubleshoots.”

The competency category with the highest average frequency per competency was “information” ($m=21.5$). The lowest average frequency per competency was “technology” with only one occurrence.

Within the horse project curricula, “Head, Heart, & Hoofs” had the highest frequency of competencies ($f=38$). The lowest frequency of competencies was “Riding the Range” ($f=18$). The curriculum piece with the greatest number of individual competencies was “Stable

Table 4-7. SCANS Frequencies within the 4-H Horse Project Curricula

Competency	<i>f</i>						Total <i>f</i>
	Giddy Up & Go	Head, Heart, & Hoofs	Stable Relationships	Riding the Range	Jumping to New Heights		
RESOURCES							
Time	0	2	2	3	5		12
Money	0	2	5	0	3		10
Materials & Facilities	0	3	5	0	3		11
Human Resources	3	2	2	0	3		10
INTERPERSONAL							
Team	1	0	0	0	0		1
Teaches Others	1	0	1	1	2		5
Serves Clients	0	0	0	0	0		0
Exercises Leadership	0	0	0	0	4		4
Negotiates	0	0	0	0	0		0
Works with Diversity	0	0	0	0	0		0
INFORMATION							
Acquires & Evaluates Info	10	11	4	4	4		33
Organizes & Maintains Information	2	4	2	2	3		13
Interprets & Communicates Information	8	13	7	5	7		40
Uses Computers to Process Information	0	0	0	0	0		0
SYSTEMS							
Understands Systems	0	0	1	0	0		1
Monitors & Corrects Performance	0	0	3	0	0		3
Improves or Designs Systems	0	0	0	1	0		1
TECHNOLOGY							
Selects Technology	0	1	0	0	0		1
Applies Technology	0	0	0	2	0		2
Maintains & Troubleshoots	0	0	0	0	0		0

Relationships” ($n=10$), while the lowest was “Giddy Up & Go” ($n=6$). Overall, the horse project curricula had a frequency of $f=147$ and 15 individual competencies present, as seen in Table 4-8.

Table 4-8. Total Frequencies and Competencies Present within the Horse Project Curricula

	Total f	Competencies Present
Head, Heart, & Hoofs	38	8
Jumping to New Heights	34	9
Stable Relationships	32	10
Giddy Up & Go	25	6
Riding the Range	18	7
Total	147	15

Commonly observed objectives within the Horse project curricula included “judging horses,” “communication,” “learning to learn,” “problem solving,” “making decisions,” “evaluating factors involved with breeding,” “critical thinking,” “taking data,” “organizing and interpreting data,” and “leading self and others.”

Outdoor Education Project

There were eight curricula analyzed within the outdoor education project (Table 4-9). The competencies with the highest frequencies are “resources- materials and facilities” ($f=70$) and “information- interprets and communicates information” ($f=30$). The competencies that did not appear in the outdoor education curricula were the entire “systems” category, three “interpersonal” competencies, two “information” competencies, and one “technology” competency.

The competency category with the highest average frequency per competency was “resources” ($f=23.25$).

“Hiking Trails” and “Backpacking Expeditions” had the highest frequency of competencies ($f=27$) of the curricula within the Outdoor Education project. The curriculum with the lowest frequency of competencies was “Shotgun Discipline” ($f=1$), which along with

Table 4-9. SCANS Frequencies within the 4-H Outdoor Education Project Curricula

Competency	<i>f</i>			
	Hiking Trails	Camping Adventures	Backpacking Expeditions	Muzzleloading Discipline
RESOURCES				
Time	3	2	4	0
Money	3	2	2	0
Materials & Facilities	7	3	6	12
Human Resources	3	2	2	0
INTERPERSONAL				
Team	0	1	2	0
Teaches Others	0	2	0	0
Serves Clients	0	0	0	0
Exercises Leadership	0	0	0	0
Negotiates	0	0	0	0
Works with Diversity	0	0	0	0
INFORMATION				
Acquires & Evaluates Information	1	2	4	0
Organizes & Maintains Information	0	0	0	0
Interprets & Communicates Information	8	8	7	0
Uses Computers to Process Information	0	0	0	0
SYSTEMS				
Understands Systems	0	0	0	0
Monitors & Corrects Performance	0	0	0	0
Improves or Designs Systems	0	0	0	0
TECHNOLOGY				
Selects Technology	2	4	0	0
Applies Technology	0	0	0	0
Maintains & Troubleshoots	0	0	0	0

Table 4-9. Continued

Competency	<i>f</i>				Total <i>f</i>
	Hunting Lesson Plans	Archery Discipline	Shotgun Discipline	Basic Rifle Shooting	
RESOURCES					
Time	0	0	0	0	9
Money	0	0	0	0	7
Materials & Facilities	0	15	11	16	70
Human Resources	0	0	0	0	7
INTERPERSONAL					
Team	0	0	0	0	3
Teaches Others	0	3	0	3	8
Serves Clients	0	0	0	0	0
Exercises Leadership	0	0	0	0	0
Negotiates	1	0	0	0	1
Works with Diversity	0	0	0	0	0
INFORMATION					
Acquires & Evaluates Information	4	0	0	0	11
Organizes & Maintains Information	0	0	0	0	0
Interprets & Communicates Information	7	0	0	0	30
Uses Computers to Process Information	0	0	0	0	0
SYSTEMS					
Understands Systems	0	0	0	0	0
Monitors & Corrects Performance	0	0	0	0	0
Improves or Designs Systems	0	0	0	0	0
TECHNOLOGY					
Selects Technology	0	0	0	0	6
Applies Technology	2	0	0	0	2
Maintains & Troubleshoots	0	0	0	0	0

“Muzzleloading Discipline,” had the lowest frequency of individual competencies ($n=1$).

“Camping Adventures” had the highest frequency of individual competencies ($n=9$), see Table 4-10.

Table 4-10. Total Frequencies and Competencies Present within the Outdoor Education Project Curricula

Curriculum	Total f	Competencies Present
Hiking Trails	27	7
Backpacking Expeditions	27	7
Camping Adventures	26	9
Basic Rifle Shooting	19	2
Archery Discipline	18	2
Hunting Lesson Plans	14	4
Muzzleloading Discipline	12	1
Shotgun Discipline	11	1
Total	154	11

Objectives commonly found in the curricula for the Outdoor Education project included “choosing the correct tools,” “planning and organizing,” “making decisions,” “teamwork and cooperation,” “critical thinking,” “selecting personal gear for base camping,” “research skills,” and “goal setting.”

Community Service/Development Project

Three curricula were analyzed for the community service/development project as shown in Table 4-11. The competencies with the highest frequencies were “information-interprets and communicates information” ($f=32$), “information-acquires and evaluates information” ($f=15$), and “resources-time” ($f=12$). The competencies absent from the community service/development project were the entire “technology” competency category, four “interpersonal” competencies, two “systems” competencies, and “information-uses computers to process information.”

The competency category with the highest average frequency per competency was “information” ($m=14.0$).

Table 4-11. SCANS Frequencies within the 4-H Community Service/Development Project Curricula

Competency	<i>f</i>			Total <i>f</i>
	Public Adventures	Agents of Change	Raise Your Voice	
RESOURCES				
Time	0	4	8	12
Money	0	2	3	5
Materials & Facilities	0	2	3	5
Human Resources	0	3	5	8
INTERPERSONAL				
Team	3	0	0	3
Teaches Others	0	0	0	0
Serves Clients	0	0	0	0
Exercises Leadership	0	0	0	0
Negotiates	0	0	0	0
Works with Diversity	0	0	1	1
INFORMATION				
Acquires & Evaluates Information	1	9	5	15
Organizes & Maintains Information	0	6	3	9
Interprets & Communicates Information	3	15	14	32
Uses Computers to Process Information	0	0	0	0
SYSTEMS				
Understands Systems	0	0	0	0
Monitors & Corrects Performance	0	1	0	1
Improves or Designs Systems	0	0	0	0
TECHNOLOGY				
Selects Technology	0	0	0	0
Applies Technology	0	0	0	0
Maintains & Troubleshoots	0	0	0	0

When divided out by individual curriculum, the curriculum with the lowest competency frequency was “Public Adventures” ($f=7$), which also had the least individual competencies present ($n=3$) as displayed in Table 4-12. Within the community service/development curricula the total frequency of competencies was $f=91$ and there were 10 individual competencies present.

Table 4-12. Total Frequencies and Competencies Present within the Community Service/Development Project Curricula

Curriculum	Total <i>f</i>	Competencies Present
Public Adventures	7	3
Agents of Change	42	8
Raise Your Voice	42	8
Total	91	10

Common objectives found within the Community Service/Development project curricula included “critical thinking,” “understanding others,” “contributing to a group effort,” “selecting a mission,” “decision making,” “communication,” “planning and organizing,” and “documenting the service learning experience.”

Leisure Arts Project

Five curricula were analyzed in the leisure arts project (see Table 4-13). The competencies with the highest frequencies were “information-interprets and communicates information” (f=37), “interpersonal-works with diversity” (f=20), and “resources-materials and facilities” (f=19). Nine competencies were completely absent from the leisure arts project curricula.

The competency category with the highest average frequency per competency was “information” (m=17.0).

In the Leisure Arts project, the curriculum with the highest frequency of competencies was “Making the Cut” (f=36), as seen in Table 4-14. The curriculum with the lowest frequency was “Measuring Up” (f=18). The greatest number of individual competencies were found in “Finishing Up” (n=8). The curriculum with the lowest number of individual competencies present was “¡Qué rico! La cultura” (n=3). In the entire Leisure Arts project curricula, the total frequency of SCANS competencies was 142. Eleven individual competencies were found within the Leisure Arts project curricula.

Table 4-14. Total Frequencies and Competencies Present within the Leisure Arts Project Curricula

Curriculum	Total <i>f</i>	Competencies Present
Making the Cut	36	7
Finishing Up	33	8
Nailing It Together	28	7
¡Qué rico! La cultura	27	3
Measuring Up	18	6
Total	142	11

Table 4-13. SCANS Frequencies within the 4-H Leisure Arts Project Curricula

Competency	<i>f</i>					Total <i>f</i>
	¡Qué rico! La cultura	Measuring Up	Making the Cut	Nailing It Together	Finishing Up	
RESOURCES						
Time	0	1	3	3	2	9
Money	0	1	3	3	2	9
Materials & Facilities	0	3	5	6	5	19
Human Resources	0	1	3	3	2	9
INTERPERSONAL						
Team	4	0	0	0	0	4
Teaches others	0	0	0	0	0	0
Serves clients	0	0	0	0	0	0
Exercises Leadership	0	0	0	0	0	0
Negotiates	0	0	0	0	0	0
Works with Diversity	20	0	0	0	0	20
INFORMATION						
Acquires & Evaluates Information	0	0	3	5	7	15
Organizes & Maintains Information	0	0	6	7	3	16
Interprets & Communicates Information	3	11	13	0	10	37
Uses Computers to Process Information	0	0	0	0	0	0
SYSTEMS						
Understands Systems	0	0	0	0	0	0
Monitors & Corrects Performance	0	0	0	0	0	0
Improves or Designs Systems	0	0	0	0	0	0
TECHNOLOGY						
Selects Technology	0	0	0	0	0	0
Applies Technology	0	1	0	0	2	3
Maintains & Troubleshoots	0	0	0	1	0	1

Objectives observed within the Leisure Arts project curricula included “identify woodworking tools,” “accepting differences,” “decision making,” “responsibility,” “learning to learn,” “learning to learn by recognizing differences,” “planning and organizing,” “comparing alternatives,” “solving problems,” “implementing a plan,” and “gathering information to solve problems.”

Objective 3. Compare the quality of the 4-H career development project curricula and the five top project curricula, as determined by the presence of SCANS competencies

In comparing the frequencies of SCANS competencies between the 4-H project areas, career development had higher frequencies overall as seen in Table 4-15. The career development curricula contained all 20 SCANS competencies, while the popular projects ranged from 10-15 SCANS competencies. The average number of competencies per popular project was 11.4. The overall competency frequency was over two times higher for career development ($f=339$) than in the popular projects ($f=122$). When comparing the average competencies per curriculum, career development contained an average of 84.8, while popular projects contained an average of 26.5 competencies.

Table 4-15. Comparison Between Career Development and Popular Project Curricula

	Career Development	Popular Project
Competencies Present ^a	20.0	11.4
Frequency	339.0	122.0
Average Competencies per Curriculum	84.8	26.5

Note: ^a Competencies present within the popular projects is a mean of all five projects.

Summary

This chapter gave a detailed report of the results of the content analysis conducted upon 28 4-H curricula. Descriptive characteristics were given for both the career development and popular project curricula. The frequencies for each competency were presented for each project

curricula. Comparisons between the 4-H career development project curricula and the five top project curricula were conducted and displayed within the chapter.

CHAPTER 5 CONCLUSIONS, IMPLICATIONS, & RECOMMENDATIONS

This chapter summarizes the study as well as outlines the conclusions, implications, and recommendations stemming from the findings made within the study.

Summary

With an increased need for youth to be prepared for the workplace youth development organizations have utilized skill and competency sets, such as the Secretary's Commission for the Achievement of Necessary Skills (SCANS), within their programs. The purpose of this study was to analyze 4-H curricula utilized by Florida 4-H to determine if 4-H curricula utilized SCANS competencies.

The objectives for this study were to:

1. Describe the inclusion of SCANS competencies within 4-H curricula.
2. Describe the frequencies of SCANS competencies within each project area curricula.
3. Compare the quality of the 4-H career development project curricula and the five top project curricula, as determined by the presence of SCANS competencies.

The data sources for this study were the 4-H curricula utilized by Florida 4-H Youth Development. The data sources included the Career Development project curricula and the curricula utilized for the five project areas with the highest enrollments within the Florida 4-H program: swine, horse, leisure arts, outdoor education, and community development and service.

In order to achieve the study objectives, a basic qualitative study was undertaken utilizing a content analysis methodology. The SCANS competencies served as the coding categories during the content analysis. Each curriculum's objectives/outcomes were coded accordingly and the frequencies were tabulated using Microsoft Excel. Thick descriptions for the SCANS competencies were also reported.

Objective 1. Describe the Inclusion of SCANS Competencies Within 4-H Curricula

Across the curricula observed and described within the study, all 20 SCANS competencies were incorporated into the objectives/outcomes but at varying frequency levels. There were competency categories 4-H covered well within the curricula, while obvious gaps were observed. 4-H curricula successfully included competencies from the “information” competency category as this was the category observed most frequently ($f=435$). This coincided with El Sawi’s (1994) findings, who attributed this to the successful implementation of the Experiential Learning Model by the 4-H Youth Development program.

Objectives were observed as lacking in the “interpersonal,” “systems,” and “technology” competencies overall. The lack of “interpersonal” competencies was also observed within the El Sawi (1994) study. 4-H programming promotes interactions of an interpersonal nature as was seen in steps of the Experiential Learning Process (Diem, 2004; Enfield, 2001) and within the skills outlined in the Targeting Life Skills Model (Hendricks, 1997). Competencies within the “interpersonal” category are reflected in steps of the Experiential Learning Process and the skills in the TSL Model. Given this interactivity, it was expected that “interpersonal” competencies would not be one of the areas lacking within the 4-H curricula.

Implications

The high inclusion of the “information” competencies (i.e. acquires, evaluates, organizes and interprets information) could be attributed to the successful use of the Experiential Learning Process (Diem, 2004; Enfield, 2001) within the project curricula. At the same time, there seems to be a disconnect with the competencies which would have been assumed to be obtained from the use of the Experiential Learning Process. The lack of “interpersonal” and “technology” competencies may create problems for youth when looking for employment. According to North and Worth’s (2002) findings, these two areas are in high demand by employers. Also with the

interactivity of 4-H programming, the lack of “interpersonal” competencies does not reflect previous studies (Boyd, Herring, & Briers, 1992; Fox, Schroeder, & Lodl, 2003; Lerner, Lerner, & Phelps, 2007; Maass, Wilken, Jordan, Culen, & Place, 2006; & Mulroy & Kraimer-Rickaby, 2006). “Interpersonal” competencies are also displayed in the Targeting Life Skills Model (Hendricks, 1996). Within the Targeting Life Skills model there are many skills that correspond with those “interpersonal” competencies within SCANS.

The lack of competencies within the projects with the highest enrollments may equate to less acquisition of SCANS competencies by 4-H members. It should be noted 4-H is comprised of more than curricula, so youth may be acquiring the competencies through other venues. At the same time it is necessary to begin the overall evaluation with the objectives set forth for the 4-H project areas (Tyler, 1949).

Bobbitt’s (1918) Play-Work Interaction Model shows the interactions of the learning objectives with the acquisition of competencies in both play-level and work-level activities. If competencies are lacking within the objectives and outcomes, then 4-H activities may also be lacking in those competencies. Without competencies laid out in the objectives and outcomes, 4-H members and leaders may not achieve the attainment of the workforce competencies within the activities (Bobbitt, 1918). Having the SCANS competencies laid out as objectives allows youth to move from the play-level to the work-level and helps them to attain those “fruits of labor” or workforce competencies.

Recommendations for practice

1. Florida 4-H should continue the inclusion of the “information” competencies as these coincide with the Experiential Learning Model and assist in the development of youth as lifelong learners.
2. Increased incorporation of “interpersonal” competencies should be concentrated upon. If the curricula already include these competencies, then the objectives/outcomes should reflect those competencies.

3. 4-H curricula objectives and outcomes should be written to reflect all competencies and skills gained within the curricula's activities.

Recommendations for research

1. Continued study should be conducted to identify the competencies necessary for youth to gain within 4-H projects and the most effective means of acquiring those competencies.

Objective 2. Describe the Inclusion of SCANS Competencies Within Each 4-H Project Area Curricula

The frequency of SCANS competencies in the curricula analyzed varied widely between each project area, ranging from $f=84.75$ in “Workforce Development” to $f=19.25$ in “Outdoor Education.” Outside of the “Workforce Development” curricula many competencies were absent from project curricula. This leaves gaps within each of the 4-H projects. As was pointed out in Objective 1, the “information” category had the highest average frequency within five of the six projects' curricula.

Implications

With the disparity between the competencies contained in each of the project areas, 4-H may not be fully empowering “youth to reach their full potential” as the 4-H Mission states (National 4-H Council, 2007, ¶ 1). Though 4-H may enable youth to gain SCANS competencies in other areas of the program, as learning objectives and outcomes lay the foundation for the fruits of labor that come out of the program's activities (Bobbitt, 1918). 4-H utilizes projects as the main mode for the development of career competencies and life skills within the overall program.

Some project areas may lend themselves to the acquisition of particular competencies more readily than other project areas. 4-H members enrolled in certain projects, such as the Workforce Development project, may acquire a more complete set of competencies than a member enrolled in a project area such as Outdoor Education. This may be due to the direct emphasis of the

Workforce Development project on career competencies, yet 4-H still promotes itself as an overall youth development program. Since over 12,000 Florida 4-H members are enrolled in those popular project areas observed to lack the SCANS competencies, this serves as an indicator that Florida 4-H members enrolled only in the popular projects may not be acquiring a complete set of competencies. 4-H members need to be equipped with a more complete set of competencies in order to succeed beyond the 4-H program.

Recommendations for practice

1. Increase the incorporation of SCANS competencies within 4-H curricula, both in the objectives/outcomes and the content.
2. 4-H educators should examine the SCANS competencies to ensure the proper competencies are incorporated into the various projects.

Recommendations for research

1. Studies should be conducted to determine which competencies are the most appropriate to be acquired in each project area.
2. Needs assessments should be conducted to gauge which SCANS competencies are truly lacking within each project area and which competencies need to have a greater emphasis placed upon them.
3. Continued research should be conducted to determine if the educational objectives/outcomes within each curriculum reflect the competencies contained within the lessons and activities. As seen within the El Sawi and Smith (1997) study, the objectives/outcomes are not always reflective of the lessons and activities.

Objective 3. Compare the quality of the 4-H career development project curricula and the five top project curricula, as determined by the presence of SCANS competencies

On average the Career Development curricula contains more SCANS competencies than the top project curricula. All 20 of the SCANS competencies were found within the Career Development curricula, while the popular projects vary in inclusion of SCANS competencies from 10 to 15 competencies. While it should be expected for the Career Development curricula to be more comprehensive in the SCANS competency inclusion, there are major gaps within the objectives/outcomes of the projects with the highest enrollments in Florida. This was also seen in

the average frequency of competencies observed per curriculum as the Career Development curricula contained an average of 84.8 per curriculum, while the popular projects contained an average of 26.5 competencies per curriculum. This again highlights the gaps within the popular project curricula. As the standard of quality for this study was the inclusion of SCANS competencies, the Career Development curricula was observed to be a higher quality.

Implications

When examining the enrollment numbers in Appendix A, only 67 4-H members within Florida were enrolled in the Career Development project, while over 1800 were enrolled each of the top project areas in 2007. These numbers combined with the observations made in the study show how 4-H members outside of the Career Development project may not be gaining the workforce competencies needed to succeed beyond their 4-H membership. The Career Development curricula may be a higher quality but only 0.26% ($n=67$) of the 26,063 Florida 4-H club members take advantage of this project (Florida 4-H Youth Development, 2007).

The lack of SCANS competencies found in popular projects coupled with the fact that a majority of 4-H members are enrolled in these projects indicate a disparity within the Florida 4-H program. With such a small number of Florida 4-H members enrolled in the Career Development project, the competencies found within these curricula are only being gained by a few. The Cooperative Research, Education, and Extension Service (2006), the agency within USDA which houses the National 4-H program, indicated one of the tasks 4-H must take on is the need to develop “the increasing professionalism of youth workers” through their programming (p. 230). At this point in time, the findings are indicating a lack of achievement in this area on the part of the 4-H curricula utilized in the 4-H programs. With the ever expanding need for youth to increase their workforce competencies, 4-H cannot neglect to incorporate these competencies into not only their curricula, but the entire 4-H programming efforts.

Recommendations for practice

1. With the large disparity between the two groups of curriculum, there is a need to incorporate more SCANS competencies within the popular projects. Competencies would be taught to more youth within the Florida 4-H program when placed in the projects with higher enrollment rather than just in the Career Development project.
2. The Career Development 4-H curricula should be promoted more greatly to incorporate increased levels of competencies into 4-H members' experiences.

Recommendations for research

1. Research should be conducted to analyze and compare the competencies gained by 4-H members in the Career Development project to those in the more popular projects.

Overall Implications & Recommendations

The 4-H curricula utilized by Florida 4-H have both strengths and weaknesses. There is a great deal of room for improvement in how the objectives/outcomes are presented within the curricula. The researcher acknowledges the 4-H program consists of more than the material included in 4-H curricula. Just as the conceptual framework displayed in Figure 2-6 and Bobbitt's Play-Work Interaction Model (1918) described, the acquisition of SCANS and other workforce competencies may occur within many different contexts.

Recommendations for Practice

1. All 4-H curricula should be updated to contain clear educational objectives and/or outcomes and educational standards. This inhibited the ability of the researcher to analyze all curricula in each project for lack of clear objectives. The inclusion of the clear objectives can also assist Extension Agents, 4-H leaders, and 4-H volunteers in selecting the most appropriate curricula for the selected project.
2. There is a need for continuing collaboration between educators (whether formal or nonformal) and industry in order to ensure students gain the competencies and skills necessary for success in the workplace. This aligns with North and Worth (2004) who recommended collaboration and communication between these two entities, as well as assessment to ensure the training of youth.

Recommendations for Research

1. Replication of this study should be conducted to ensure a higher degree of trustworthiness. Additional studies could include a larger sample size, additional

curricula from other Cooperative Extension Services, additional program areas, and additional raters.

2. Continued research should be conducted to ensure the most up-to-date competencies and skills are being addressed from the employers', educators', and youth's aspects.
3. SCANS competencies should be revisited and revised according to the needs of the workplace and the youth. The relevance of the current competencies should be examined to ensure the necessary competencies are included and outdated competencies are removed or updated.
4. Evaluation of 4-H curricula should be conducted to ensure the content of the materials are the most up-to-date and relevant for the 4-H members utilizing the materials. The publication and revision dates for the curricula varied from 1997 to 2005.
5. Continued research on 4-H curricula's content should be conducted to ensure 4-H members are gaining the knowledge, competencies, and skills 4-H promotes in the mission.
6. Additional studies should be performed to describe and/or analyze the inclusion of SCANS competencies outside of the context of the 4-H curricula. These can include club meetings, competitions, and leadership roles.
7. Research should be conducted to determine the extent Extension Agents are utilizing 4-H curricula in their county programs.
8. SCANS competencies should be examined to ensure each competency only covers one competency and not multiple within one heading. For example, the researcher encountered issues with the "information-interprets and communicates information." This competency covered objectives ranging from "decision making" to "communication," which in some cases may not be as close as the one heading implies.

APPENDIX A
FLORIDA 4-H PROJECT AREAS SORTED BY 2007 ENROLLMENT FIGURES

Project Area	Enrollment
Swine	3283
Horse	2989
Leisure Arts	2570
Outdoor Education	1966
Community Development/Service	1847
Beef	1760
Exploring 4-H	1734
Poultry & Embryology	1562
Rabbits	1524
Citizenship	1339
Food & Nutrition	1191
Gardening	1167
Media/Visual Arts	1067
Leadership Development	1056
Aquatic/Marine	1022
Plant Sciences	912
Wildlife	792
Clothing Construction	732
Animal Science	654
Food Preparation	634
Performing Arts	545
Public Presentation Skills (w/o Tropicana)	465
Communication Arts	413
Volunteerism	410
Pets/Small Animals	356
Clothing & Textiles	339
Agriculture General	282
Aerospace	262
Veterinary Science	249
Sheep	231
Consumer Education	220
Water Wise Guys	203
Science & Technology	173
Money Management	171
Cultural Education	132
Safety	131

Project Area	Enrollment
Computer Technology	127
Personal Development	114
Clothing Selection	93
Water Quality/Conservation	92
Workforce Preparation/Career Development	67
Meat Science	65
Child Development	59
Bicycle	58
Small Engines	56
Astronomy	51
Character Education	39
Wings	35
Llamas & Alpacas	17
Automotive	11
Weather & Climate	9

APPENDIX B
CURRICULA UTILIZED IN CONTENT ANALYSIS

¡Qué rico! La cultura (CCS Publication No. 4HCCS BU-08180). (2005). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

4-H shooting sports: Hunting lesson plans. (Available from Florida 4-H Youth Development, PO Box 110225, Gainesville, FL 32611). (n.d.). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

Backpacking expeditions (CCS Publication No. 4HCCS BU-08045). (2004). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

Bass, M. (1999). *Citizenship—Public adventures guide's handbook* (W. Brabender, ed.) (CCS Publication No. BU-07330 2001). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

Bennett, D. L. (n.d.). *Florida 4-H shooting sports: Archery discipline*. (Available from Florida 4-H Youth Development, PO Box 110225, Gainesville, FL 32611). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

Camping adventures (CCS Publication No. 4HCCS BU-08044). (2004). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

Florida 4-H shooting sports: Muzzleloading discipline. (Available from Florida 4-H Youth Development, PO Box 110225, Gainesville, FL 32611). (n.d.). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

Florida 4-H shooting sports: Shotgun discipline. (Available from Florida 4-H Youth Development, PO Box 110225, Gainesville, FL 32611). (n.d.). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

Fuller, A. (2004). *Basic rifle shooting*. (Available from Florida 4-H Youth Development, PO Box 110225, Gainesville, FL 32611). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

Get in the act! Youth guide (CCS Publication No. 4HCCS BU-08191). (2004). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

Going whole hog (CCS Publication No. 4HCCS BU-08067). (2004). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

Hiking trails (CCS Publication No. 4HCCS BU-08043). (2004). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc..

Jordan, J. C. & Shaffer, A. (n.d.). *Countdown to careers: Lift off!!: A 4-H career development project: Unit 1* (Florida 4-H Publication No. 4HWPM10). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

Mowing for money (Florida 4-H Publication No. SPPSL40.1). Gainesville, FL: University of Florida/IFAS Cooperative Extension Service.

Putting the oink in pig (CCS Publication No. 4HCCS BU-08066). (2004). Chevy Chase, MD. National 4-H Cooperative Curriculum System, Inc.

Stephens, C. T. (1997). *Mowing for money: A dollar and sense guide to lawn care workbook* (Florida 4-H Publication No. 4HPSM30). Gainesville, FL; University of Florida/IFAS Cooperative Extension Service.

The incredible pig (CCS Publication No. 4HCCS BU-08065). (2004). Chevy Chase, MD; National 4-H Cooperative Curriculum System, Inc.

APPENDIX C
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Skill/Competency	Occurrence in Objectives/Intended Outcomes (Tally)	Total Occurrences (Numerically)
1. Resources		
a. Time		
b. Money		
c. Material & facilities		
d. Human Resources		
2. Interpersonal		
a. Participates as a Member of a Team		
b. Teaches Others New Skills		
c. Serves Clients/Customers		
d. Exercises Leadership		
e. Negotiates		
f. Works with Diversity		
3. Information		
a. Acquires and Evaluates Information		
b. Organizes and Maintains Information		
c. Interprets and Communicates Information		
d. Uses Computers to Process Information		
4. Systems		
a. Understands Systems		
b. Monitors and Corrects Performance		
c. Improves or Designs Systems		
5. Technology		
a. Selects Technology		
b. Applies Technology to Task		
c. Maintains and Troubleshoots Equipment		
TOTALS		

Total Number of Skills & Competencies Present _____

% of Skills & Competencies Present _____

APPENDIX E
SCANS COMPETENCIES CODING CATEGORIES

- I. **Resources:** Identifies, organizes, plans, and allocates resources
 - A. *Time* & Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
 - B. *Money* & Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
 - C. *Material and Facilities* & Acquires, stores, allocates, and uses materials or space efficiently
 - D. *Human Resources* & Assesses skills and distributes work accordingly, evaluates performance and provides feedback
- II. **Interpersonal:** Works with others
 - A. Participates as a Member of a Team & contributes to group effort
 - B. Teaches Others New Skills
 - C. Serves Clients/Customers & works to satisfy customers' expectations
 - D. Exercises Leadership & communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies
 - E. Negotiates & works toward agreements involving exchange of resources, resolves divergent interests
 - F. Works with Diversity & works well with men and women from diverse backgrounds
- III. **Information:** Acquires and uses information
 - A. Acquires and Evaluates Information- evaluating; non-conclusive
 - B. Organizes and Maintains Information
 - C. Interprets and Communicates Information- make decision; conclusive
 - D. Uses Computers to Process Information
- IV. **Systems:** Understands complex inter-relationships
 - A. *Understands Systems* & knows how social, organizational, and technological systems work and operates effectively with them
 - B. *Monitors and Corrects Performance* & distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions
 - C. *Improves or Designs Systems* & suggests modifications to existing systems and develops new or alternative systems to improve performance

- V. **Technology:** Works with a variety of technologies
- A. *Selects Technology* & chooses procedures, tools or equipment including computers and related technologies
 - B. *Applies Technology to Task* & Understands overall intent and proper procedures for setup and operation of equipment
 - C. *Maintains and Troubleshoots Equipment* & Prevents, identifies, or solves problems with equipment, including computers and other technologies.

APPENDIX F
EXPERT PANEL & THESIS COMMITTEE

Dr. Amy Harder- Assistant Professor, Extension Education

- Agricultural Education & Communication Department, University of Florida
- Former Colorado 4-H & Youth Development Extension Agent
- Cooperative Curriculum System Design Team member

Dr. Nicole Stedman- Assistant Professor, Leadership Development

- Agricultural Education & Communication Department, University of Florida

Alexa Lamm- Graduate Student, Extension Education

- Agricultural Education & Communication Department, University of Florida
- Former Colorado 4-H & Youth Development Extension Agent
- Cooperative Curriculum System Design Team member

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BIOGRAPHICAL SKETCH

Diane Elizabeth Mashburn was born in Bakersfield, California, and has since lived in Edom, Texas. Throughout school, Diane was involved with 4-H and FFA, along with raising animals at her family's home. These early beginnings in agriculture stemmed a passion for the field which joined with a love for teaching youth in her higher education fields.

Diane attended Texas Tech University for her Bachelor of Science- Interdisciplinary Agriculture, where she concentrated on teacher certification. She continued to be involved with 4-H by taking on leadership roles within the Texas Tech Collegiate 4-H club. During her undergraduate education, she was given the opportunity to conduct research with professors in the Agricultural Education & Communication Department at Texas Tech University and present research at conferences, such as the Association of International Agricultural and Extension Educators and the Association of Leadership Educators conferences. She finished her education at Texas Tech by completing her student teaching at Lubbock-Cooper High School in Lubbock, Texas.

The interest in youth, agriculture, and research developed into an interest in continuing her education to the masters level at the University of Florida. 4-H involvement followed her to UF as she took on a graduate advisor position with Collegiate 4-H and has volunteered with Florida 4-H. Upon graduation Diane will be taking a position within agricultural and extension education.